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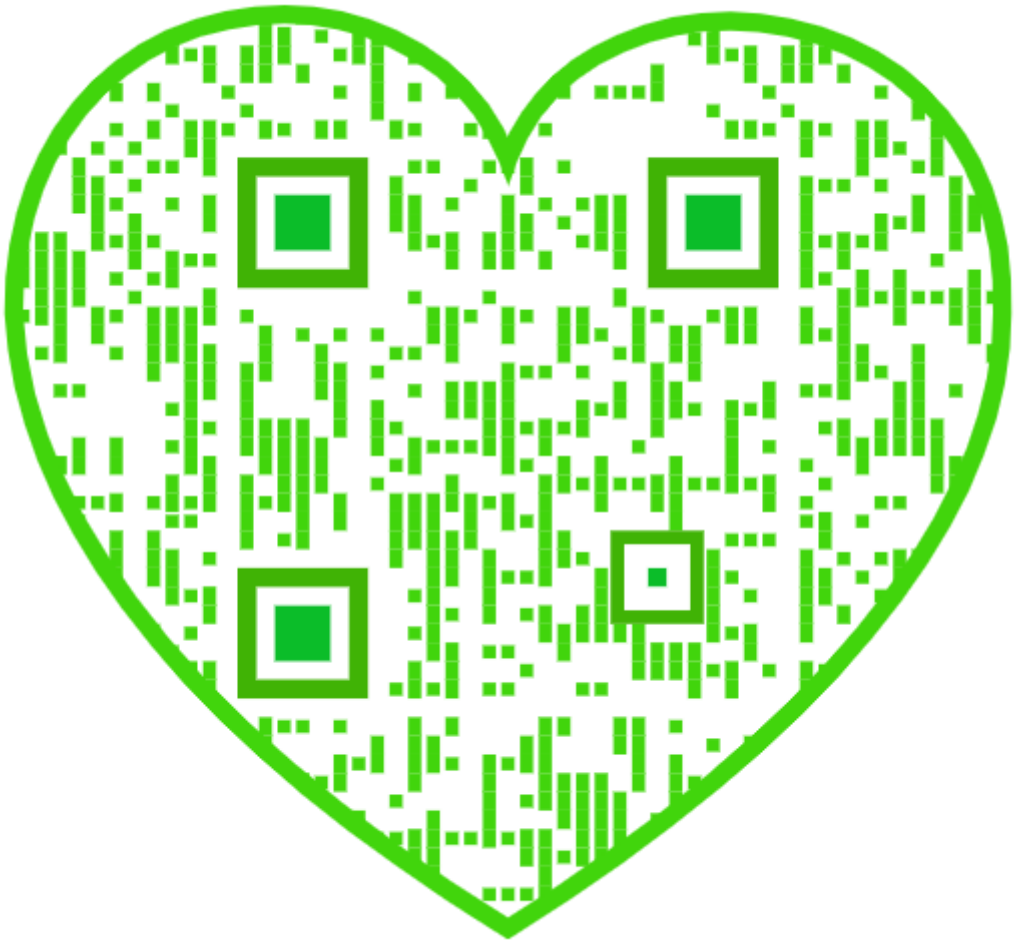

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THOMAS WILLIAM COWAN, F.G.S., F.R.M.S., F.L.S., ETC.

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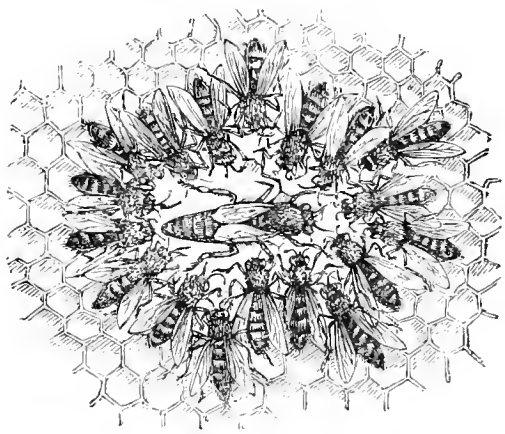

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Editorial, Notices, &c.

THE NEW YEAR.

THE commencement of the year and a new volume brings us into close relationship with our readers. While it gives us the opportunity of wishing them all a Happy New Year, it also enables us to thank all our many friends who have during the past year favoured us with their patronage and assistance, and it also enables us to acknowledge the numerous testimonials we are constantly receiving of appreciation of our labours, and also of approval of the mode of conducting the *Journal*. With this number we begin Vol. XVII., and we have every cause for satisfaction that, notwithstanding the last season was the worst of any since the time the *Journal* was first started, it has gradually extended its circulation. The first volume contained 200 pages, and the last has increased to 626; and although it is more than three times the size, the cost has not increased. All the leading British bee-keepers are contributors to our columns. Nor is its circulation restricted to Britain, for it goes into every part of the world, and contributions of many of the leading men of other countries are found in its pages. Although we receive numerous appreciative letters, we could only publish them by occupying space which is more usefully employed in giving information of use to bee-keepers. The writers of these will therefore excuse us if they do not appear in print, and receive the assurance that we are grateful to them all the same. Though our volumes have considerably increased in size, and our space thereby augmented, it has at times scarcely permitted us to keep abreast with the many contributions which have been forwarded to us, and we have, we fear, trespassed on the patience of our friends by the postponement of the appearance of their letters. A perusal of the index of last volume will give an idea of the extent and variety of the work we have in hand. During the coming year we hope to continue that work.

The Bee-keepers' Vocabulary is well advanced, so that during the year it will either approach completion or become completed. This will be by far the most complete Bee-keepers' Dictionary ever attempted, as may be gathered from what has already appeared. Hitherto the most complete dictionary of this kind was that by J. Phin. In this, under letter A, there are 23 words, and 62 words for letter B. In our vocabulary letter A has 125 and B 198 words.

Amongst the new features we are about to introduce are short biographies with portraits of the leading bee-keepers of the world, as well as those who have taken so prominent a part in raising bee-keeping to the position it occupies at the present moment in this country.

We hope that during the present year we may be favoured by a continuance of the assistance hitherto given to us, and any suggestion for the advancement of bee-keeping shall have our warmest support. No expense will be spared to make the *Journal* the most perfect of its kind, and we ask our readers to use their best endeavours to further increase its circulation, that we may be enabled to make still more improvements.

In wishing our readers a Happy New Year, we trust that the season of 1889 may be more prosperous to them than that of 1888, and hope that bee-keepers may be able to supply the growing demands for honey in this country.

A RETROSPECT.

During the quietude that at present prevails in the homes of our bees,—especially where they have received the requisite attention from the intelligent foresight of their keepers,—we are invited to take a slight retrospective glance at the year that has now passed away.

The year 1888 will be remembered by the bee-keeper as having been perhaps the most disastrous he has ever experienced. The numerous 'Echoes from the Hives' have wafted to us, with but few exceptions, the dismal tale that the past honey season has been a failure, and that consequently the hopes of bee-keepers, which for a short time were bright and exultant, have not been realised. Meteorologically the year has been a curiosity. The spring was extremely long and tedious, and it seemed most reluctant to give place to the long-looked-for summer. But the vouchsafed glimpses of summer were but transient and of short duration, passing again to cold and wet, which continued through the greater part of the season. The close of the autumn was marked by its singular mildness. The failure of the honey-harvest was very general throughout the kingdom. Only in the south-western

parts of Ireland was there any surplus, and it has been principally from these parts that the honey-suppliers have this year derived their stores. The bees were not even able to gather sufficient for their winter consumption; and the bee-keeper, besides being thus deprived of his expected harvest, has been obliged to invest largely to provide the necessary food so that the bees might be able to tide over the winter.

The season has proved of a trying and of a sifting nature; the lukewarm and the old-fashioned bee-keeper will succumb, and many such will probably leave the ranks in disgust. And not only to the bee-keeper has the season proved to be one of trial, for already many of those to whom we have looked for the supply of hives and other appliances have been compelled to give up the pursuit; and also some Companies, which were started with a great measure of public support, have found it necessary to close their doors. The year has indeed been an abnormally adverse one; but it has—or should have—its lessons, as it will demonstratively show that the old system is not to be depended on in a time of adversity, while modern apiculture is able to cope with disaster and possesses a superiority over that which we trust will soon pass away. It is for the intelligent bee-keeper to give earnest heed to the lessons which may be gathered from the disasters of the past year,—lessons of patience, perseverance, and providence. We are in no disposition to be despondent or to despair; there is no reason why the coming season should be a repetition of the last. The provident bee-keeper will reap, in the strength of his stocks and in the lessons of his experience, the advantages of his foresight; but those who have been indifferent to the welfare of their bees will in future have strong reasons to provide against those emergencies and difficulties which may possibly occur.

The past year has been one of anxiety for the British Bee-keepers' Association. This Association has now been in existence for fifteen years, and during that time it has adhered firmly to the object for which it was instituted, viz., to uphold the industry of bee-keeping, and to instruct the agricultural and other labouring classes of Great Britain the most humane and profitable methods of bee-keeping; and it has found that the most effective method of accomplishing this object was by the establishment of County Associations, affiliated with the Central, in every county of England and Wales where the inhabitants were disposed to take sufficient interest in the pursuit. The task has been arduous, but the Association has steadfastly kept to the work assigned it, and has reason to congratulate themselves on the great measure of success which has followed their labours. It cannot, however, be a matter of surprise that in the course of years some changes should be required in the constitution of the society; and we feel assured that by the joint efforts of the Central and affiliated Associations these changes will be harmoniously arrived at. Let us look at the work of the B. B. K. A. During the past year judges, examiners, experts, and bee-tents, have been sent to Bedfordshire, Nottinghamshire, Hunts, Leicestershire, Buckinghamshire, Middlesex, Surrey, Kent, &c.; and it will be readily understood that these arrangements can only be effectively carried out at considerable expense and trouble. Four quarterly meetings have been held, at which useful discussions have taken place on various subjects appertaining to bee-culture; and in addition to the above the Bee Department of the Royal Agricultural Show at Nottingham must not be lost sight of. The Association may well point to the past and appeal to all bee-keepers for a warm-hearted support. The work of the Associations is not yet achieved. There is still a great deal before the Central and the affiliated Associations. Let both be mutually assistant and forbearing, and the work, however difficult, will, we are assured, be satisfactorily accomplished.

With the exception of Mr. W. B. Webster's *Book of Bee-keeping*, we are not able to report that there has been any addition to the literature of bee-keeping during the past year. But various works which are considered standards amongst bee-keepers,—such as Cowan's *Guide-Book*, Cook's *Manual*, and Root's *A B C*,—have passed through new editions, in which much that was obsolete has been omitted, and considerable additions have been made, and all are brought up to the present date.

There have been few novelties produced during the past season, the principal have been several ingenious methods of fixing foundation. Glass sections appear to be coming to the front. We have had submitted to our notice the 'Hallamshire' glass section, and that put forth by Mr. T. Bonner Chambers; both of these were very commendable for their beauty and delicacy, showing forth advantageously the work of the bees. Might we suggest to Mr. Bonner Chambers the propriety of giving some distinctive appellation to the glass sections he has been placing before the public in the pages of the *Journal*?

We have thus taken a cursory glance at some of the events of the past year; and we trust that all bee-keepers, forgetting the things which are behind, will press forward to those which are before, and strive, with renewed zeal and increased energy, to redeem the past, so that their labours may be crowned with a great and an abundant measure of success during the present year.

USEFUL HINTS.

A New Year's greeting to all our readers. May '89 prove to be a year of happiness and success to all. The year '88 will long be remembered in apiarian records as the most unfavourable to the bee-keeping fraternity of any year on record. The seasons of spring, summer, and autumn, were conspicuous only by their absence. Writing at the close of October a meteorological authority says:—

'Since the really hot weather of the summer of '87 we have been treated to what is practically an almost unbroken spell of wintry weather, as out of sixty-three weeks the country has only had ordinary warmth in ten scattered weeks, while the cold in the other fifty-three weeks has been rigorous and searching. At the present moment London shows a falling-off in temperature equal to three degrees per day throughout the whole period of sixty-three

weeks—a total deficiency of 1,323 degrees. There is no record of any approach to such a deficiency before. There have been very much colder winters and colder summers than we have had this year, but an unbroken series of seasons, from one autumn to the next, all continuously cold, is a most extraordinary circumstance. The early part of the year was marked by almost daily falls of snow over a large part of the country; the spring—or what should have been so—had more snow, little rain, and frosty nights. Then followed a wretched summer, still more snow, even in July, and more frost, and the break-up of the long drought succeeded by deluging rains. Crops of hay utterly spoiled, and much carried away by floods. Crops of corn beaten down by torrents of rain, while the absence of the sun withheld the heat necessary for the proper advancement of cereals. And now the summer is gone, and we are well on with autumn, but still no improvement; indeed, on the contrary, we seem to have gone from bad to worse. There has been snow in many parts of the country at an unusually early date.

'The first week of October was the coldest for the period of which there is any record, London having a mean temperature of less than 41 deg. for the week, a temperature which we expect in the coldest parts of December and January, and which was 14 deg. below the average for the week. In the past fortnight there has been a deficiency of 6 deg., so it is no exaggeration to say that we are in winter rather than in autumn.'

Since the 21st of October, when the above was written, we have experienced, as stated in last 'Hints,' an extraordinary high temperature, and almost every spring flower has been reported, from various districts, as blooming in November and December. The seasons have become mixed. Astronomically the first day of winter is the 21st December, the shortest day. According to this rule spring begins on March 21st, summer on June 21st, and autumn on September 21st. But is this division in accordance with popular ideas? Our encyclopædias tell us that the winter quarter is considered to be November, December, and January; the spring quarter, February, March, and April; the summer quarter, May, June, and July; and the autumn, August, September, and October. In America, December, January, and February, are the winter months, and so on through the seasons, summer beginning on June 1st, and autumn on September 1st. Probably this is the division which the great majority of Englishmen would prefer, and it seems the more natural one. We rarely have continued severe weather before Christmas Day; indeed, the longest and most frosts on record have set in about that date. This year our best, nay, our only summer was in September, while during November and December we enjoyed fine, open, mild weather, and few days could be called wintry. Englishmen are accustomed to changeable weather, but so unusual has been that of the last sixteen or eighteen months that we deemed the record, in summary, well worthy of notice.

Virgin Queens.—The exchange or purchase of virgin queens, as a means of obtaining fresh blood, by English apiarists, was fully discussed in some of our early issues of '88. In Canada and the United States expense is saved, by many, in purchasing virgin, in preference to fertilised and 'tested' queens. In providing the latter for sale the queen-breeder has to introduce the virgin, to wait until she begins to lay, to remove her, and to forward her to the purchaser; hence the expense and loss of time are considerable. If the breeder despatches a virgin queen to his customer, much of the expense and time are saved, the queen is introduced to the colony without delay, and, weather permitting, is fecundated and soon at work ovipositing. Mr. D. A. Jones, of Beeton, Ontario, tells us that he has despatched large numbers of carefully-bred virgin queens to his customers, and could fill pages with testimonials in their favour, and he opines that such queens, carefully bred from superior mothers and tested colonies, will become favourites with purchasing apiarists. We much wish that this system prevailed more in our own country, since by its adoption in-and-in breeding would be avoided, and new blood would be introduced at a trifling expense to many of our apiaries. First-class virgin queens, bred from good strains of the various races, would no doubt find plenty of buyers at fairly remunerative prices. We sincerely trust that this 'hint' may be taken by our queen-breeders, feeling convinced that there is a mine here which has hitherto remained almost unworked, and which may prove a profitable speculation as well as a great boon to English bee-keepers.

Wasps *v.* Hornets.—Mr. Blankley (No. 1934, p. 625) appeals to us respecting a wasps' nest which he found suspended from the rafters of a cowshed. Is he quite certain that it was not a *hornets'* nest? We have repeatedly found hornets' nests suspended as described, and for several years in succession we had one thus suspended from the roof-tree of our granary, and occasionally we find one in the roof of our small parish church, also in the cavity of a decayed old oak, or elm-tree, and the shape of the nest is always globular, as described by Mr. Blankley. But we have never found a *wasps'* nest thus suspended. The favourite nesting place of the wasp is a dry bank, a rat or other hole generally being taken possession of by the queen-wasp as the foundation of her nest, and enlarged by her progeny as occasion requires. In the autumn of '87 we captured in our church a remarkably fine specimen of a queen hornet, and despatched her by post in a Benton's mailing cage to an entomological friend, who received her in safety and in a lively condition. Afterwards she hibernated, but what her fate was eventually we never heard. The editorial note appended to Mr. Blankley's letter will have answered his other queries.

Breeding will now commence in strong and healthy colonies, and, as the young emerge from the cells, the brood-nest will be gradually enlarged, so that by the time for carrying in pollen arrives, and the old bees become greatly reduced in numbers by early flights in search of farinaceous food, the early hatched brood will supply their place. No stimulation, nor disturbance of any kind, must be allowed, except perhaps in the case of dysentery, the signs of which may generally be observed on soiled alighting-boards. In such case it is well on a fine day to raise gently the quilts in order to ascertain the condition within. If the interior is found to be foul from dysenteric discharges, we advise the transference of bees and combs to a dry, clean, and slightly-warmed hive. At the same time the filth should be scraped from the exterior of the frames, and a cake of soft, warm candy should be placed above the cluster. All this may be done with great advantage to the bees on a warm sunny day, but it should be quickly. Let the bees be confined to a few combs—as many as they are able to cover—by division-boards and outside packing.

Dampness.—Colonies occupying hives which have become saturated by leakage, melting snow, &c., or through faulty roofs or covers, may also be transferred as recommended above to clean and dry hives. On this subject of dampness, or 'moisture,' Professor Cook seems to have taken a new departure when he writes, 'I do not feel nearly so anxious for a dry cellar as I once did. Our old cellar had water in all the time, and often the atmosphere was very damp, as shown by the damp walls and the mould that would collect on suitable bodies in the cellar; yet for many winters that cellar was a perfect success, the bees always coming out in good shape. To recapitulate, I am sure that water, or even moisture, in a cellar, are not inimical to bees placed in it during winter.'

Dryness of hives, however, and a dry, south aspect, on a dry soil, we very much prefer to a damp cellar as a winter location for our bees, and such without hesitation we recommend to our readers.

WITH THE AMERICAN BEE-KEEPERS.

By Thomas B. Blow, Welwyn, Herts.

(*Continued from p.* 611.)

Palmer House, Chicago.

My last communication left me at Watertown, Wis., and just before I left I had the pleasure of an introduction to Professor McLain, who is the United States apicultural agent, and whose experiments in bee-culture have excited so much attention over here. I therefore made arrangements to meet the Professor in Chicago, and go to see the experimental station he has charge of as I went through that city a few days later. I had received a most cordial note of invitation from Dr. C. C. Miller of Marengo, Ills., and very much wondered how he got such advance notice of my visit. I told you in my last that I had suspicion that 'Amateur Expert' had been at work, and here I got a proof of his good design to give the traveller a cheery halting place on his journey, for he had written to Dr. Miller to tell of my coming, and hence my invite. Mr. Cowan had especially hoped I would call here, as he had missed Dr. Miller when he made his visit to these parts last year.

Dr. C. C. Miller.

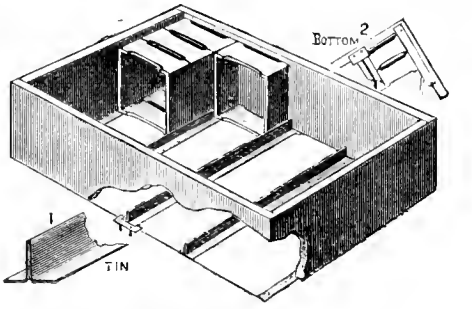
On alighting at Marengo Station, a very jolly-looking man, with a cheerful, smiling face, stepped up and greeted me. This was Dr. Miller, and we were soon in his buggy, and driving towards his home. Dr. Miller is one of those men who like to enjoy life as it comes along—he wants to enjoy it right here, and objects strongly to that class 'who never are, but always to be blest.' Therefore he has quitted city life for many years, and has settled down with his good wife on a pleasant hill, commanding fine views of a charming country. And, as far as I can see, Dr. Miller has found happiness and enjoyment, and allows the cares of the world to rest but very lightly on his shoulders. He is happy among his bees, and his recreation away from home is to attend the Bee Conventions, and have a good time among his bee brothers. I ought to mention, too, that he is musical, and has set to music two bee songs that were sung at the last Convention. The words were by Mr. Secor, and the music by Dr. Miller. He is a great lover of flowers, too; especially of roses, and the many specimens of pot roses in bloom in his dwelling house were worthy of admiration.

My visit was to be but a short one, and therefore we soon got down to work—to practical work—for it is as a practical bee-keeper, one who produces honey as a business, that Dr. Miller particularly excels. He had just finished putting his bees into winter quarters, that is, cellaring them, for he has decided that the cellar plan is the only one that will be uniformly successful out here. And he thinks too that now, after years of costly experiment, that he has just about perfected his plan. All the stocks were in cellar by October 25th, for it is considered a decided objection to have allowed the stocks to have felt frost. This is a great point. The most important, however, I should have mentioned first perhaps, and that is, the stores and the condition of stores for wintering. In this particular season, the bees have just about enough natural honey stored and sealed to last them till spring; this of course is the best of conditions, but if they have to be fed, the feeding must be done quite early. Dr. Miller feeds rapidly and early, so that all is sealed over before the weather gets cold. His feeder is a large wooden one, much on the lines of the large square wooden feeders that we have in England, seen so much at the shows during the past year. It is, however, a little simpler than most of them, and here it answers admirably. The third point essential to success is keeping a fairly even temperature during the whole of the winter, and to accomplish this a stove is kept in each of the cellars. The temperature should range between 38° and 45°, and some considerable attention is needed during the whole of the winter, when I mention that at Marengo the mercury sometimes reaches 37° below zero. It is, however, not cold weather that is dreaded, but mild, damp spells, which sometimes come and arouse the bees. The stove is very desirable not alone from a warming, but from a ventilating point of view, a constant supply of fresh air being necessary. It may be hardly necessary to mention that the hives themselves when put in the cellar should be quite dry. The bodies of the hives only, of course, are carried in the cellar, as the space is limited. The quilts are left on just in the usual way, and are covered with a kind of crown-board. The first row of hives is placed on stands, so that there is a space of 6 in. between hive and earth; then a lath is put, and another tier of hives, and so on until the ceiling is reached. For ventilation, the whole of the doorway, full width of hive, is left open; and Dr. Miller would prefer more bottom ventilation could he manage it, but as all his hives have fixed floor-boards, it cannot be done. This year the number of stocks in cellar is 285. The largest number that Dr. M. has ever kept is 400, and he has brought out of the cellars safely in spring 363 stocks, but now he reckons that he will not lose more than two or three per cent. If by any chance any of the colonies are not well supplied with stores, these are placed separately, so that when need arises a comb of honey may be given to them, but it is far better, if possible, not to have any

operation to perform while the bees are in the cellar. The actual time the bees remain in the cellar is 156 to 160 days. The flowering of the soft maple is a good guide for the time to take the bees out into the open again.

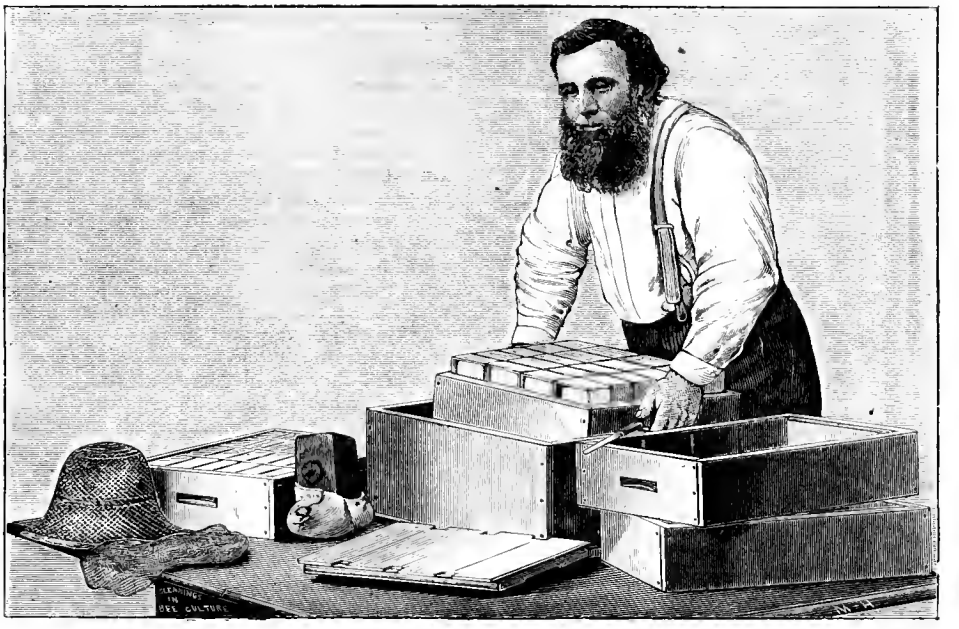
Dr. Miller thinks it quite possible to overstock a locality, and he therefore divides his stock up into three or four apiaries. The past season has been a disastrous one, and the bees have given no surplus, but have here got about enough to supply them for the winter. Dr. Miller has had very large crops—his largest, 16,599 lbs.—and he is always able to dispose of it, and does not much seek a home market, as he is able to sell it in very large lots to dealers in distant cities, and thus save much time and trouble. He does not care to trouble with extracted honey, but raises all for sale in the form of 1-lb. sections. He usually shifts it in crates two tiers high, the sides protected with glass, and prefers, if possible, to send it off in car-loads, so that there is no transhipment. We used to hear so much about the travelling of combs, whether they should be at right angles or parallel to the axle of the conveyance, hear what Dr. Miller says: 'In a wagon let the combs be parallel to the axle; in a railway car let the combs be at right angles to the axle.' He likes to get all the honey sold off early, owing to the great difficulty of keeping it in good condition in the very cold weather.

Of course I need hardly mention that the hives here are all suited to the same size frame. The size is nearly that of the Langstroth frames, and the hives originally were built to contain ten frames, but experience has caused the hive to be built smaller, and for the future all hives will be eight frames. The bees are wintered on the whole eight frames, as contraction in the autumn for winter is not believed in. If extracted honey should be needed, then the plan used is that of tiering in the same way as we do in England; but for super honey, shallow lifts are taken just the size of the stock hive. What is called here the ⊤ super is formed by means of ⊤-shaped girders or supports of folded metal, upon which the sections are stood. In some of our super crates we have the same principle. The lower part of the ⊥ forms the rest of the section, and on the ridge formed by the tail of the ⊥ the dividers rest. Dr. Miller has experimented largely on sections of all



Dr. Miller's ⊤ Super.

widths, and has decided that for marketing purposes it is best to stick to one size and one width. He has hardly decided whether he likes six or seven sections to the foot, that is, 2 in. or 1¾ in. With these widths he of course always uses dividers, and would do on any width that exceeded 1½ in. I sought his opinion with regard to size of foundation used in sections, and it was to as nearly fill the section as possible without causing bulging or sagging. A. Clark's foundation-fixer is used, and he prefers it to Parker's. However, he was much interested to hear of the section with the groove all round, into which the foundation was slid as the section was folded, which is now coming into much use in England. There is no difficulty here in getting the bees to occupy the supers, and the stock hive is always much contracted at the time the supers are put on, and the bees therefore really are forced into the supers at once. Usually the stock hive is left with only five frames in it. These frames are placed on one side of the hive, and a division-board is used, and laths the same length as a top-bar fill up the top of the empty space thus formed. A skeleton Heddon honey-board is placed on between the hive and super, and the bees then get access to the whole of the super. Oftentimes some unfinished last year's sections are put in the middle of



Dr. Miller taking off his ⊤ Supers.

each crate as an additional inducement for the bees to enter the supers quickly. The plan so much used in England of tiering up the crates of sections is in use here. When the bees have partially filled one tier, it is raised, and a tier with empty sections placed below. This may again be lifted, and a third tier added, but of course this altogether depends on the honey-flow. The feeder that I spoke of is just the size to go into one of these tiering boxes.

(*To be continued.*)

BRITISH BEE-KEEPERS' ASSOCIATION.

Meeting of the Committee held at 105 Jermyn Street on Thursday, December 20th. Present, the Hon. and Rev. H. Bligh (in the chair), Rev. J. L. Seager, Rev. R. Errington, Captain Bush, R.N., Captain Campbell, H. Jonas, W. O'B. Glennie, Treasurer, and the Secretary.

The minutes of the last Committee Meeting were read and confirmed. The Finance Committee, in their report, notified that the balance of the Peel Memorial Fund had been invested in consols. Letters were read from the Royal Agricultural Society, intimating that the Council would consent to additional amounts being given to any Berkshire exhibitor who may be a prize-winner in the bee department at the Windsor exhibition in open competition with the rest of the country.

Resolved, That Saturday, January 26th, be fixed as the last date for receiving notices of motions for the next annual meeting, and for the nomination of candidates for election on the Committee for the ensuing year.

The Secretary presented the list of suggested amendments to the rules of affiliation as prepared by the special Committee elected at the previous quarterly Conversazione. Communications were received from Mr. T. W. Cowan, the Rev. Geo. Raynor, and the Rev. Dr. Bartrum, in reference to this subject, and regretting their inability to be present. After some discussion on the proposal to make representatives of affiliated Associations *ex officio* members of the Committee of the Central Association, the consideration of the suggestions was adjourned until the next meeting of the Committee, to be held on January 17th.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements.)*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

THE B.B.K.A. AND THE AFFILIATED ASSOCIATIONS.

[1938.] A considerable stir in the bee-world has been made by the proposal emanating from the affiliated Associations' representatives that they should be placed in a position of greater weight and power in the manage ment of the affairs of the B.B.K.A. This, after all, is but another attempt to do that which the Committee of the B.B.K.A. itself has long tried to effect, viz., to have the more distant parts of the country represented on its Boa rd of Management as well as the counties which are in the immediate vicinity of the Metropolis. This has failed, for scarcely any one residing at a distance has yet been found who would consent to serve on the Committee, and those few who have made the attempt have proved by their non-attendance at Committee meetings that they had miscalculated the difficulties of doing so. That the affiliated counties, within the limits of possible or probable attendance, are not fairly represented now, is disproved by the fact that out of fifteen members of Committee, five are Secretaries of County Associations. It is the distant parts of the country that are not represented, and this is the result of no attempt on the part of the Committee or electors of the B.B.K.A. to keep them out, but is owing simply to their geographical position. The remedy now proposed is, that all the representatives of affiliated Associations should be *ex officio* members of the Committee. Would this arrangement produce the desired effect? A few of the representatives of the home counties would probably attend at the regular meetings, and thus would increase, if possible, the weight of that section of the bee-world which is already well represented on the Board. The representatives of the distant counties would not really take their share in the ordinary business of the Committee, because their attendances would be few and far between. What harm then, it may be urged, could the accession of this large body of *ex officio* Committee-men effect? It would provide the possible means of over-riding the deliberate conclusions to which the ordinary Committee might come. This might be effected far more easily than at first sight appears. Committees are not always unanimous, and the Committee of the B.B.K.A. is no exception to the rule. Some nicely balanced question may, after much careful deliberation, have been decided by a small majority. This may not be in accordance with the views of even a small number of the county representatives, who could bring up half-a-dozen (perhaps three or four might be sufficient) to the next Committee meeting, and upset the arrangement made. I would not do any of those who are advocating this large addition to our members the injustice to suppose that they think it possible that such an advantage would be taken of the position of power in which they would find themselves; I do not myself think it probable; but I do say this, that as a member of the Committee representing all the members of the B.B.K.A., by whom I have been placed in the position which I hold, I do not feel that I have any right to support any proposal which would hazard the control of the affairs of the Association by the creation of a power which may at any time take the direction of affairs out of the hands of the elected Committee. This I know is a feeling which is shared by many of our Committee-men. Is there no other alternative—is there no method by which our far-off friends might be better represented at the regular monthly meetings of the Committee? Could not our Committee of fifteen be increased by five, and these five be elected by the county representatives, and be men who would be in a position to attend the meetings of Committee? By this arrangement, should the five county Secretaries now on the Committee be re-elected, the power would be very evenly balanced between the county officials and the other members of the Committee; or, if there are one or two more county Secretaries elected in February, which I think is not at all improbable, there would be a decided majority in favour of the representatives of County Associations. In conclusion, I will only express the hope that I may be pardoned for speaking out so decidedly my opinion as to this question, and will only plead that I am myself a county Secretary, and also one of those who first met together when the B.B.K.A. was brought into existence, and one of its first Committee-men.—HENRY BLIGH, *Hampton Hill, December 24th.*

IN THE HUT.

'Some against hostile drones the hive defend,
Others with sweets the waxen cells distend.'

[1939.] It is not fitting that any one writing under a pseudonym should join in any debatable subject such as

is now exercising the minds of some of your correspondents anent the B.B.K.A. and its offshoots, so I will not say anything of a controversial character. There are those who think there is a spirit of semi-mutiny abroad, and that unless this and the other be done there is a danger of baneful opposition and rebellion. I don't believe a word of it. 'X-Tractor' wears his heart upon his sleeve, conceding nothing, and, so far as he is concerned, judging the conduct of others by his own, the motives prompting the movers in the matter are not commendable. They wish to strengthen the hands of the executive, and although they might be compared to Churchills and Beresfords, I am fully persuaded they are too loyal to the government to go over to any opposition, if there be one. Fortunately there is not yet amongst us that so-called parliamentary etiquette which demands resignation unless one can get all one's own way. In the beautiful imagery of Mr. 'W. N. Griffin' (1929) the wedding garments may need some alterations, but if the adjustments are unhappily to consist of repeated croppings off at the ends, we shall be confronted with the spare supports of what we thought an admirably strong structure. If your contributor will let me take the same liberty of altering his story (as the forethinking ladies took with the trousers) as applied to the B.B.K.A., I would say, we wish the sartorial covering of our Society to be of a broader and wider, rather more of a dual nature than heretofore; there will then be more room for expansion and play of limb; it is not sought to either shorten or extenuate the garment. This witty bit of Mr. Griffin's I take to be a welcome flavouring in the *B.B.J.* columns. I wish some others would at times liven us up in a similar way—a dash of pepper, vinegar, or mustard sometimes gives as good a zest as editorial salt.

Oh, Mr. Lett! how nasty of you to suggest apiphagism! (1935), that, as a result of hard times, we should cultivate an appetite and liking for bees as a delicacy for the table, and, with the advantages of the parcel post, we are to rear bees as a wholesome, nutritions, and toothsome relish! So we are to *advance* into raising cakes of brood for food, instead of making candy cakes as food for brood! I throw out the suggestion gratuitously to the bee-keeper of the future, that the cakes after being raised should be baked a little like cakes of wasp-grub for fishermen. You see we have not had to wait long for the wheel to revolve from skep combs, squeezed until something exudes which can be spread on bread, and is delicious, to going right ahead for the grubs and things *au naturel*. Beforetimes 'ignorance was bliss,' now and in the future 'rearing bees for the bees' sake would be all the go.' I thought it was all the go now, and I *don't* think, could we consult the bees, *they* would consider it was for *their* sake we raised and ate them. Shades of the R.S.P.C.A.! What now when we begin to eat our gods? Ugh! I have a nephew who once had a morbid liking for the taste of the caterpillars infesting gooseberry-bushes, and who boasted of the delicacy of flavour they possessed without *the annoyance of the gooseberry skins*. Zulus and Hottentots will wait patiently for a bee-nest to be taken, and eat the cakes of grub with avidity; locusts are eaten by the Arabs in Algeria (and these people are much disgusted with us for eating oysters). The grub of the palm-weevil, the size of one's thumb, is in request in both the Indies; a roasted worm taken from a plant was esteemed a delicacy by the Indians; various larvæ, fattened up with flour, were eaten by Roman epicures; in Surinam a grub the thickness of a finger is emptied, washed, roasted, and found delicious. Dr. Darwin (Erasmus, I think, grandfather to the great Darwin) thought the cockchafer might fitly be added to our entremets; stimulating drink is made from a beetle by the Mexican Indians: locusts are made into flour, soups, and stews, eaten salted, smoked, and pickled (we eat shrimps, by the way!) I am reading about these things until I am nearly sick, and will refer any one still curious to page 170 of Kirby and Spence, where those who are inclined to think with Mr. Lett will find much enjoyable mental food, and smack their lips with gusto at the bodily food asking to be eaten in their own gardens, *and they didn't know it!* I may, however, remark casually that I do not yet desire to *leave* this

'Very *best* world that ever was known;'

but I certainly do not desire to *remain* until the time comes when I am brought down to eating 'those blessed bees.' Nebuchadnezzar was nowhere in coming down to his purely vegetarian diet.

As soon as the season permits me to examine hives I intend substituting half sheets of boiler-felt for the quilts above the enamel cloth. The sheets are 34″ × 20″ × 1″ thick, and are very similar to the thick cakes of felt used under military saddles; one sheet at 1*s.* will divide for two hives—rather expensive!

I cannot pretend to much prophetic vision, yet I fancy I see in the 'dim and distant' a small cloud the shape of a shallow frame. Next season it will be a serious question 'in the hut' as to whether *all surplus* chambers shall not consist of these easily-manipulated and compact firm arrangements of comb, in preference to risky, full standards or sections. For heather honey the use of super foundation in shallow frames (drawn out at home) is the most perfect method yet out of securing slabs of clean comb perfectly portable.

Speaking of portraits of bee-keepers (1933) I this (Christmas) morning received a capital photograph of 'Amateur Expert' and his good lady going out for a drive with 'St. John' in the shafts. The likenesses are excellent; our friends are happy on the face of it, but I cannot help thinking that while 'A. E.' has to hold his steed's head it has succeeded in simulating a treacherous expression of innocence; the demon white-rolling of the eye is wisely veiled from our gaze.

The Christmas sun is sinking down (somewhere, I suppose), and so is one side of the hut in consequence of the long-continued rains, for 'the rain it raineth every day,' so I will light my smoker, roast my feet, and toast my absent friends. That all true bee-keepers may have 'a richt guid new year' is the hearty wish of—

X-Tractor.

'WIDE ENTRANCES, RAPID FEEDING, IMPERVIOUS QUILTS.'—HEALTHY COLONIES.

[1940.] 'There you are! ladies and gentlemen, with three matters of "practice" which when "carefully carried out" will fill your apiaries with the fourth.' Who's right? Our veteran friend, Mr. C. N. Abbott, *knows* he is, and I know full well it's of little use for any one to say he is wrong, or else there will be a r——. Well, well, we'll just 'argify' a bit and carefully abstain from direct contradiction, and then everything will travel smoothly along and all friction will be avoided.

It seems strange, at least to me, that two such opposite theories as those referred to in (1925) and the present letter should have such strong partisans among those who may be reckoned as some of the leaders of apiculture in Britain. But it is so. Yet it seems stranger still that one of these partisans, who upholds the *theory* of the first-mentioned letter, should express so decided an opinion, or I might say knowledge, of what will eventually take place if bee-keepers do not treat their bees just as he advises—destruction. I can't make it out; I have examined my apiary in previous springs many and many times. There are the entrances wide open; there are the impervious quilts; yes, and there are dozens of colonies that have been fed up rapidly, but they were not dead. Well, well, I must give it up, and satisfy myself with the reflection (*re* Mr. A.'s letter) that they ought to be. Anyway I'm well content to go into the apiary now, and

note every colony with impervious quilts, every colony with entrances the whole width of the hive, and every colony, except four, having been fed up rapidly, and am just as certain that they will winter successfully as Mr. C. N. A. is that they will not. Who will be right? I was right in years gone by; I can't see that I must be wrong simply because it is the year of the three eights. Last year, under exactly similar conditions, I had one case of dysentery—that was in a Jones-Heddon hive that had no quilts at all, and was queenless after Jan. 25th. Anyway, dysentery has not shown itself yet in the slightest degree among nearly a hundred colonies that I have charge of.

A wide entrance may, as Mr. A. asserts, be a trifle colder inside the hive. But what of that? Bees will stand whilst in the cluster a very low degree of temperature, much lower than we have it in England: yet they will not stand dampness. Which would be the driest in winter—a wide entrance or a constricted one?

I remember impervious quilts long before even the year 1874, yet the bees didn't die,—yes, an old box-hive that I am now looking at was made before that period. If you were to turn it upside down it wouldn't make a bad aquarium, or when reversed a fair reservoir to an air-pump. I know the roof to that must have been an impervious quilt. An impervious quilt, properly applied, I feel sure makes no direct difference whatever to the bees' welfare, neither does it increase the honey yield one iota. It is not, I take it, for the bees' benefit that such are used, but simply for the bee-keepers. In the first place, if good material is used, they are much cheaper than woven ones, as they last an indefinite time; and, secondly, they can be removed from off the frames with a minimum of disturbance to the bees, making it a pleasure rather than a fear to handle a vicious colony. They are a deal cleaner, as the bees do not propolise them nearly as much as woven material.

Another advantage is that if a roof leaks—and with a large number of colonies one is almost sure to get more or less leakage—an enamel quilt prevents the moisture from among the bees or on the combs. It is the same with right-angle and parallel frames, which point, I think, is now definitely settled; it makes no direct difference to the bees which are used, but only to the bee-keeper. I hold the parallel is the best: they are my choice.

Now with regard to rapid feeding. What bee-keeper has not at some time or other fed up rapidly a condemned stock? Did they die simply because they were fed up rapidly in conjunction with an enamel quilt and wide entrance? I never had such a failure. No one is better able to form an opinion as to the condition of a colony such as Mr. A. describes—'A cold hive sealed against the escape of vapour evolved from the bee cluster,' &c., than himself. But do we find a hive in such a condition from the effects of rapid feeding, wide entrance, and enamel quilt? I have yet to do so.

Mr. A. is perfectly correct when he observes that disturbance and consequent excitement of a colony produces ovipositing; the bees then feeding, to produce the necessary food for the larvæ, become distended with fæcal matter from the fact of their being unable to fly forth to discharge same—an instinct of cleanliness implanted in them. The assertion, page 618, in italics, that this cannot be accomplished except on the wing can be negatived by any observant bee-keeper. But does the enamel quilt, &c., condition produce this disturbance? I have yet to see it do so.

A hive with woven quilts can be wintered successfully, and so can one with the labour-saving, economical, cleanly, and non-irritating enamel quilt; but this must be well and thickly covered over or padded in the same manner as Mr. A. recommends with the porous substitutes. Will rapid feeding when properly carried out cause the bees to leave quantities of unsealed stores? Such an assertion does not tally with my experience. The stores in my hives were sealed just as effectually with rapid as with slow feeding. But I did not feed in November, as then even with the slowest of feeding the stores would have been unsealed and dysentery must have followed. But this would simply be the effect of late, not rapid feeding.

I have endeavoured to avoid dogmatism as much as possible, having simply given my experience, which is sufficiently varied and extensive as to carry some amount of weight with it.—W. B. Webster.

NOTES ON THE HONEY SEASON OF 1888.

[1941.] The year now drawing nigh a close has been a most remarkable one, not only to the *apiarian*, but also to the *writer*. To the former the honey crop of 1888 is not likely to be soon forgotten as the worst we have had for the last ten years, or possibly longer. To the latter, though ranking under the same category, the events of 1888 have amply rewarded the sacrifice of a bad season. To relate my experience of the season, briefly let me state that, in company with my brother, when it became generally known that Glasgow was going to have a great exhibition, we made early application for space, and spared no pains in putting before the Directors evidence in support of our demand for an exhibit of honey. To make this display worthy the name, and as representative as possible, we set about procuring samples from districts throughout the kingdom during the season 1887; though the expense, combined with risk in doing so, was very great, our efforts were not lost in bringing together a collection of honeys rarely to be met with, and which proved attractive, and was the admiration of thousands, particularly the agriculturist, during the run of the great International Exhibition.

On the 8th of May our city was favoured with a visit of their Royal Highnesses the Prince and Princess of Wales, the occasion being the opening of the International Exhibition, Glasgow, and on that memorable day we had the honour of presenting to H.R.H. the Princess of Wales samples of Wigtownshire honey, neatly got up and placed inside a beautiful morocco case. The Princess was pleased to accept the same, and in course the honey was forwarded to Marlborough House. The following is a copy of the acknowledgment of same:—

Marlborough House, Pall Mall, S.W.
5th June, 1888.

Colonel Clarke begs to acknowledge receipt of Messrs. E. and J. D. McNallys' letter to Sir Francis Knollys, and is directed to thank them for the samples of Scotch honey they presented to H.R.H. the Princess of Wales at the Glasgow Exhibition.

It was also arranged when her Majesty the Queen visited our Exhibition that her attention would be especially directed to the honey exhibit, which contained as a centrepiece the words in honeycomb 'God save Queen Victoria,' a device specially got up for the occasion by my brother, Mr. William McNally, Glenluce, N.B. The favourable comments from the press have done much to create a fresh impetus in the art of bee-culture.

Followed by this achievement, I resolved to pay a visit to the great National Co-operative Fête, held in the Crystal Palace, London, on 18th August, and considering the adverse season, the honey display was certainly a creditable one. When there, I had the pleasure of meeting most of the English bee-masters of note, and the courtesy extended to me on all hands was far beyond my expectations. I must admit that the English bee-keepers are not half so clannish or so jealous-minded as the majority of Scotch bee-keepers are. After spending a few days in London, I visited Ashford, Kent, and made a tour amongst some of the bee-masters in

that neighbourhood. The beautiful scenery of this district, combined with the facilities for keeping bees, are beyond the reach of man to fully illustrate.

Altogether my ventures with bees and honey this season, 1888, are the happiest recollections since I became a bee-keeper; and before concluding this jotting I would urge on those who have left the ranks owing to the failure of the season, or are thinking to give up bee-keeping in disgust, the great value of a little enthusiasm at times. I have proved that this does more to carry on the hobby, either as a business or for pleasure, than all the grumbling comments penned from time to time by those who in reality have no love for bees beyond the adding to their income. The men who have done most to advance bee-culture have never made profit even in a prosperous year, their liberality to friends in presenting the produce of their bees with the view that some day they too will become bee-keepers, has crippled their profits so far as honey is concerned. Readers, take courage; attend carefully to your bees even in a bad season, and success will ultimately crown your efforts. Wishing all my brother bee-keepers that the new year may be a happy and prosperous one, I am, &c., JOHN D. MCNALLY, *Springburn, Glasgow, December 21st.*

WASPS' NESTS.

[1942.] A correspondent in the *B. B. J.*, December 24th, 1888, No. 1934, asks (in effect) how a wasps' nest after it has been made round can be enlarged without being broken up and rebuilt, and having had an opportunity to observe the construction of a hanging nest from its very commencement to the twenty-fourth day, I am in a position to give the information he asks.

The interior scales of the outer covering are gradually cut away to be used as material for building the cells, the second mastication being, no doubt, necessary to reduce the woody fibre to the fineness of texture required for the purpose, and other scales are gradually but continually being added to the outer surface of the covering, fresh material being gathered for the purpose away from the nest, so that by this process a gradual increase of size is obtained as it is required for the enlargement of the combs.—S. C. K.

TRYING TO TAKE A SWARM OF BEES.

[1943.] The experiences of a novice in the above business may be of some service to your readers, so I venture to give an account of my first attempt at trying to hive bees. I am a juvenile bee-keeper, having only started last year to try honey making, or rather the management of bees. I bought eight swarms from a neighbour who was removing to a town, and excellent hives they were, except one which was bad, and is now defunct. They wintered well, and made a fair quantity of honey this summer, which was more than many hives did. June was a fine month, and I looked with impatience for any sign of their swarming. I had got everything ready for hiving them: veil, gloves, &c., and I thought I was sting-proof, and two splendid 15*s.* hives from McNally, of Glenluce, who really makes excellent articles, and at a very moderate price. At last, on a sunny day (a rare thing this summer), my gardener, James, came running to say a swarm had come off! This was my opportunity, and I proceeded to make use of it at once. Fully ensured, as I supposed, against stings, I approached the swarm, which had clustered round the stem of a low gooseberry bush. I sprinkled them with water, and boldly advanced to take them captive. With a skep in my hand, I endeavoured to sweep them into it, but I had not a brush, and so got only half off the bush, and got three stings.

What I collected I conveyed to one of my new hives, before which I had spread a sheet, and emptied them upon it, as I had read somewhere that they would enter it with a gentle hum. Humming there was with a vengeance, but it was anything but gentle. I tried to find the queen, to put her into the hive, but could not find her, because she was not there. It was very hot, and my stings were trying, so I took the lot up in the sheet, and emptied them into the hive, covered them up, and left them. I then retired to my snuggery, and consoled myself with a large beaker of beer, and thought over the ways of bees in general, and mine in particular, and rubbed my wounds. Suddenly in rushed James. 'Please, sir, the bees are going!' 'Let them go, James,' said I; 'they may be more easily taken in another place.' A few minutes after in he rushed again. 'Please, sir, they are making for the roof of the house!'

Now this was too bad; had not I expended pounds to make the roof bee-proof, and yet the wretches always found their way in? Out I rushed, and there they were coming 'in their thousands.' 'What am I to do?' I exclaimed. 'Gie them some poother,' said the under-gardener. 'A shot! A shot!' I exclaimed, 'I'll give them six!' So up I ran to an upper window, near which was the cluster of bees hanging, with a big revolver in my hand, and fired six shots through the approaching bees; but it was no use. Hearing a dreadful noise, and loud laughter after my cannonade, I looked down, and here was the whole establishment assembled with gong, bells, poker and tongs, &c., and laughing louder than their combined musical instruments.

I then descended, and consulted with the under-gardener as to what was to be done. He said, 'I'm no feared o' bees,' and volunteered, if the long ladder was brought, to go up and bring them down. The long ladder was brought, and with some exertion reared against the house, and up went my man (with a veil on, however) and a skep in his hand, into which he swept the cluster of bees. I did not think, myself, it was of any use, as I was certain that the queen had entered the roof, which was the case, as the bees were all up and out of sight in half an hour. After that experience I let the under-gardener hive the remaining swarms which came off. I had the space beneath the roof explored lately, and there is an enormous amount of fine honey in it, but ungetatable without breaking a ceiling or lifting the roof.

Before closing, I must tell you my man James's opinion of bees. Having been reading up Cowan's *Guide-book*, I was discoursing learnedly to James about the wonderful instinct of bees. He heard me to the end, and then observed, 'They are wonderful beasts is bees, sir; it's a peety they couldna be made without *stangs!*' James had suffered.—WATERSIDE.

SITUATION OF THE HIVE.

[1944.] In recent issues of the *Journal* great stress has been laid upon the importance of placing hives a considerable distance from the ground. The writer of a leading article in the *Journal* for November 22nd goes so far as to say, 'It has many times been demonstrated that hives reared above the ground on legs do better than those placed just off the earth, and resting on a brick or two. The difference is most apparent in winter; the greater dampness near the ground, added to the consequently lower temperature, being detrimental, and, of course, placing at a discount any colony so situated, if it does not entirely *run out* before the summer commences.' This is information of a somewhat startling nature. For the last four years the whole of my hives, with the exception of about three, have been placed within 6 in. of the ground, a position which I decidedly prefer to any other. My floor-boards are made of ¾ in. stuff nailed to side cleats 2 in. wide by 3 in. deep, the only stand used being four bricks. The advantages of such a plan, especially during spring, summer, and autumn, are manifold,

and it certainly has not been my misfortune to meet with the serious drawbacks named by the writer of the article referred to, and also by 'Useful Hints' December 6th. The hive is a sufficient distance from the earth to allow a free current of air underneath. The ground around and under the hive is strewed with sawdust, and I fail to see how a hive thus treated can absorb from the earth moisture in quantities that would prove detrimental to the inhabitants, if indeed any absorption takes place at all, which I very much doubt. If an examination be made after several successive wet days, the under side of the floor-board will be found to be 'as dry as a bone.' If the 'running out' of stock could be attributed to the altitude of the situation in which the hive is placed, then it would be easy to solve a difficulty which I have for many years been labouring under, and which I have not yet entirely overcome.

I am not ashamed to admit that in spite of all that I have hitherto been able to do, I always have in the spring of the year a percentage of weak stocks, of which I shall have more to say later on, but in no greater degree now than when the whole of my hives were raised 18 in. from the ground, nor are my returns at the end of the year less satisfactory, in fact three of my worst stocks last spring had been wintered in the latter manner. They gathered no surplus during summer, and required copious feeding in the autumn; while, on the other hand, even in a season like 1888, many of my stocks that had been wintered close to the ground gave several pounds surplus honey, and required no feeding up for winter. Of course I don't mean it to be inferred that the weak stocks referred to were weaker than the rest on account of being placed further from the earth. I simply mention the incident to show that hives that will do well in an elevated position would be none the less prosperous if placed close to the ground, and *vice versa*.

I have just had the pleasure of meeting Mr. White, of Somersham, whose name is well known to your readers, and whose opinion respecting the above exactly coincides with my own. I am unable to refer to back numbers of *Journal*, as I have just sent five volumes to be bound, but I have an idea that I have read somewhere Mr. Cowan's advocacy of placing hives near the ground, and, if I mistake not, Mr. Simmins also advocates a similar plan. It would be interesting to hear from the two gentlemen named. The question is an important one. If it can be proved *beyond all doubt* that bees do best in hives raised 18 in. from the ground, let us by all means follow that system. But unless my experience in the future differs from that of the past, I shall fail to see the wisdom of putting myself to the trouble and expense of providing stands, which, at the best, are risky.—A. SHARP, *Huntingdon*.

BEES IN CEYLON.

[1945.] While lately reading *Eight Years in Ceylon*, by Sir Samuel W. Baker, I met an account of the native bees of that island, which I am sure will be interesting to many of your readers. The author describes a village in the Veddah country, where the 'people lived upon sago cakes, pumpkins, wild fruits and berries, river fish, and wild honey.' He says nothing to intimate that they ate these insects, which I think it likely, had he found them doing it, he would have mentioned, as he deprecates their eating every scrap of wax they can obtain as well as the honey.

The following is what he writes about the native bees and honey:—

'Wild honey is very plentiful throughout Ceylon, and the natives are very expert in finding out the nests by watching the bees in their flight, and following them up. A bee-hunter must be a most keen-sighted fellow, although there is not so much difficulty in the pursuit as may at first appear. No one can mistake the flight of a bee en route home, if he has once observed him. He is no longer wandering from flower to flower, in an uncertain course, but he rushes through the air in a straight line for the nest. If the bee-hunter sees one bee thus speeding homewards, he watches the vacant spot in the air until assured of the direction by the successive appearance of these insects, one following the other nearly every second in their hurried race to the comb. Keeping his eye upon the passing bees he follows them, until he reaches the tree in which the nest is found.

'There are five varieties of bees in Ceylon; these are all honey-makers except the carpenter bee. This species is entirely unlike a bee in all its habits. It is a bright tinsel green colour, and the size of a large walnut, but shaped like the humble-bees of England. The mouth is armed with a very powerful pair of mandibles, and the tail with a sting even larger and more venomous than that of the hornet. These carpenter bees are exceedingly destructive, as they bore holes in beams and posts, in which they lay their eggs, and the larvæ of which, when hatched, feed upon the timber.

'The honey-bees are of four very distinct varieties, each of which forms its nest on a different principle. The largest and most extensive honey-maker is the "Bambera." This is nearly as large as a hornet, and it forms its nest upon the bough of a tree, from which the comb hangs like a Cheshire cheese, being about the same thickness, but five or six inches greater in diameter. The honey of this bee is not so much esteemed as that of the smaller varieties, as the flavour partakes too strongly of the particular flower which the bee has frequented; thus in different seasons the honey varies in flavour, and is sometimes so highly aperient that it must be used with much caution. This property is, of course, derived from the flower which the bee prefers at that particular season. The wax of the comb is the purest and whitest of any kind produced in Ceylon. So partial are these bees to particular blossoms that they migrate from place to place at different periods in quest of flowers which are then in bloom. This is a very wonderful and inexplicable arrangement of Nature, when it is considered that some flowers, which particularly attract these migrations, only blossom once in "seven years." This is the case at Mewera Ellia, where the "nillho" induces such a general rush of this particular bee to the district, that the jungles are swarming with them in every direction, although during the six preceding years hardly a bee of the kind is to be met with.

'There are many varieties of the "nillho." These vary from a tender dwarf plant to the tall and heavy stem of the common "nillho," which is nearly as thick as a man's arm, and about twenty feet high. The next honey-maker is very similar in size and appearance to our hive-bee in England. This variety forms its nest in hollow trees, and in holes in rocks. Another bee, similar in appearance, but not more than half the size, suspends a most delicate comb to the twigs of a tree. This nest is no larger than an orange, but the honey of the two latter varieties is of the finest quality, and quite equal in flavour to the famed "Miel vert" of the Isle de Bourbon, although it has not the delicate green tint which is much esteemed in the latter.

'The last of the Ceylon bees is the most tiny, although an equally industrious workman. He is a little smaller than our house-fly, and he builds his diminutive nest in the hollow of a tree, where the entrance to his mansion is a hole no larger than would be made by a lady's stiletto.

'It would be a natural supposition that so delicate an insect would produce a honey of corresponding purity; but instead of the expected treasure we find a thick, black, and rather pungent but highly aromatic molasses. The natives, having naturally coarse tastes and strong stomachs, admire this honey beyond any other.'

I have to thank you, Mr. Editor, for your reply to my inquiry about bees being used as food. I suppose that you refer to the tribe in Central Africa, where Schweinfurt, in *The Heart of Africa*, vol. ii., p. 167, mentions as indiscriminately devouring 'the honey, the wax, and the very bodies of the bees themselves,' whenever they captured a nest. I knew of this when I asked the question about Ceylon, and since I wrote I have been studying Baker's entertaining volume, which does not corroborate the author I previously quoted.—H. W. LETT.

BORGUE HONEY.

[1946.] I have taken a deep interest in the controversy that has for a considerable period been going on in the columns of the *Kirkcudbrightshire Advertiser*, but which the editor brought to rather an abrupt termina- last week owing to several of the writers indulging in personalities.

I cannot accept the reply of 'A. McN.' (1892) as a satisfactory one to the offer I made in a previous issue of the *Journal*. The fact of wealthy families only buying the Borgue product and paying a high price for it does not go to prove it possesses the reputation for quality 'A. McN.' would have us believe, and from his own confession not being a bee-keeper, I make bold to say he is not a competent judge. That Borgue to-day enjoys a reputation she is not entitled to is apparent to every bee-keeper in Scotland that knows anything about honey, and the fact that Borgue honey has never won a prize outside its own territory is ample proof that it ranks as only ordinary quality. 'A. McN.' further asserts that the Borgue apiarians have nothing to gain by going outside, as they already occupy the premier place (?). If he still holds that opinion I should like to know why he has refused to send samples of the Borgue product to compare with other samples from districts in Scotland in the hands of competent judges. The offer I made still holds good, and if 'A. McN.' has the courage to offer *one guinea* I will add another *half guinea* to make a first and second prize for the best sample of six 1-lb jars of extracted honey in Scotland, the Editor to appoint practical judges to award the prizes, whose decision shall be final. This, then, will be a fair test of deciding the point whether Borgue is fairly entitled to the honour she claims.

In the event of 'A. McN.' accepting this offer, I ask you, Mr. Editor, to name the conditions of competition, and further I ask every Scotch bee-keeper to send samples, so that a fair test will be given. *Omne solum forti patria.*—SAINT MUNGO.

WAX SECRETION.

ANSWERS TO QUERIES.

[1947.] *Do bees secrete wax at certain seasons of the year, even if not required, or is the action entirely voluntary?*

Do not know. Wax-scales being dropped into the bottom when they have no room to build comb, would look as if the action is not always voluntary.—A. G. WILLOWS.

I do not know.—IRA ORVIS.

I really do not feel that my investigations upon this point have been thoroughly enough conducted to warrant my giving a positive answer. I will only venture the assertion that it is at least largely voluntary. —L. C. ROOT.

Secreting wax in the bee is not voluntary. They secrete wax as the result of high feeding and proper condition. When these are present, the secretion of wax is involuntary, as much so as is the taking on of tallow by the ox when well fed with proper food. The clustering process seems to facilitate wax secretion, and this much is voluntary.—G. W. DEMAREE.

Yes, certainly. Nature prepares them at swarming-time for the secretion of wax, and it is a mistake to give them full combs at that time, thereby thwarting nature; the wax is not needed and the bees dry up.—JOHN YODER.

Not unless required, I think.—D. P. NIVEN.

Don't know.—F. MALCOLM.

No; the action is entirely voluntary.—DR. DUNCAN.

Voluntary, I would say.—W. COUSE.

I think it is either directly or indirectly voluntary.—A. J. COOK.

No.—DR. A. B. MASON.

I don't know; perhaps a little of both.—DR. C. C. MILLER.

The action is wholly voluntary. It is, however, a natural following of natural laws. Comb building and honey gathering go hand in hand together. When the honey flow ceases, comb building stops. The exception is only when comb enough is built to contain the stores and brood.—J. E. POND.

I believe the action voluntary.—A. D. ALLAN. —*Canadian Honey Producer.*

NOTICES TO CORRESPONDENTS & INQUIRERS.

HONEY FLOW.—The bee sent for identification is a queen.

G. BARTHORP.—*Dead Bees.*—The bees have become chilled, and so prevented regaining the entrance. We much prefer the sun to shine upon the alighting-board, as then the bees have a warm place to alight upon. The entrance must be darkened when snow is upon the ground, or the loss then will be very great, as they will fly direct at the snow, and instantly become chilled.

YORKSHIRE LEARNER.—*Bees tempted out by Sun.*—You will find either a slate or a board placed in a leaning position from the ground to the front of the hive answer very well, more especially if you can fasten it so that it cannot blow over. A simple way would be to fasten a cord to the upper end of board with a couple of nails, and then tie the cord round the hive. A peg at the bottom would make all secure.

H. M.—*Sugar candy.*—The sugar candy sold by grocers is not suitable food for bees.

Business Directory.

HIVES AND OTHER APPLIANCES.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin
APPLETON, H. M., 256A Hotwell Road, Bristol.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
BURTT, E. J., Stroud Road, Gloucester.
EDEY & SON, St. Neots.
GODMAN, A., St. Albans.
HOWARD, J. H., Holme, Peterborough.
HUTCHINOS, A. F., St. Mary Cray, Kent.
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MEADOWS, W. P., Syston, Leieester.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
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HOWARD, J. H., Holme, Peterborough.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
STOTHARD, G., Welwyn, Herts.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

WINDSOR MEETING, 1889.

Commencing MONDAY, JUNE 24th, and closing SATURDAY, JUNE 29th.

PRIZE LIST FOR HIVES, HONEY, &c.

Exhibits in Classes 1, 3, 4, 5, 6, 7, 8, 9, 10, 11 (sections excepted), must be manufactured by the Exhibitor. Exhibits in Class 1 and in Class 19 to be staged and repacked by the Exhibitor.

CLASS 1.—For the best collection of Hives and Appliances, to consist of the following articles:—One Frame-hive, priced at 15*s.*; one ditto, priced at 10*s.* (*Note.*—These Hives must be fitted with arrangements for Storifying.) One Observatory Hive; one Hive of Straw or other material, not entirely of wood, for obtaining either Comb or Extracted Honey; one pair of Section Crates fitted with Sections; one Extractor, one slow stimulating Feeder, one rapid Feeder; one Smoker or other Instrument for quieting Bees; one Veil, one Swarm Box for travelling, capable of being used as a Nucleus Hive; one Travelling Crate for Comb Honey; five other distinct articles not specified at the discretion of the Exhibitor. Each article to be priced separately. No articles must be added to the collection, nor any portion of the Exhibit removed during the Show. First Prize, 40*s.*; second Prize, 30*s.*

CLASS 2.—For the best Observatory Hive stocked with Foreign Bees and Queen. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 3.—For the best and most complete Frame-hive for general use, unpainted. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 4.—For the best and most complete Frame-hive for general use. The Hive shall consist of (1) a Floor-board on four short legs; two Chambers or Body-boxes, equal in size, similar and interchangeable, both to have porches, with entrances not less than 12 in. wide, that can be contracted at pleasure, each chamber to be capable of holding at least ten Standard Frames, but only one set of Frames with strips of foundation fixed and two division-boards to be supplied. (2) One Case of 4¼ by 4¼ Sections, with foundation fixed and separators, of such size as to admit of its being placed inside the chamber. (3) A substantial Roof, sufficiently deep to cover a case of sections and afford ample protection to the whole Hive, the price of each part, namely, stand and floor-board, body-box, case of sections, and roof, to be given separately, the whole not to exceed 15*s.*, unpainted. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 5.—For the best and most complete Frame Hive for general uses. The Hive shall consist of (1) one Chamber or body-box, containing ten Standard Frames having strips of foundation fixed, two division boards, entrance porch, and floor-board, the chamber capable of being used with a second of the same pattern. (2) One Case of twenty-one Sections, 4¼ by 4¼, with foundation fixed and separators. (3) A Roof sufficiently deep to cover one case of sections at least, the price of each part, namely, floor-board, body-box, case of sections, and roof to be given separately, the whole not to exceed 10*s.* 6*d.*, unpainted. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 6.—For the best Honey Extractor, price to be taken into consideration. First Prize, 15*s.*; second Prize, 10*s.*

CLASS 7.—For the best Honey Extractor, price not to exceed 12*s.* 6*d.* First Prize, 15*s.*; second Prize, 10*s.*

CLASS 8.—For the best pair of Section Racks, completely fitted for use and interchangeable, price not to exceed 3*s.* 6*d.* each. First Prize, 15*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 9.—For the best Feeder for slow stimulating feeding. First Prize, 10*s.*; second Prize, 5*s.*

CLASS 10.—For the best Feeder for quick autumn feeding, capable of holding at least 5 lbs. of food at a time. First Prize, 10*s.*; second Prize, 5*s.*

CLASS 11.—For the best Smoker. First prize, 10*s.*; second Prize, 5*s.*

CLASS 12.—For Useful Inventions introduced since 1887. Special Prizes according to merit.

CLASS 13.—For the best 12 Sections of Comb Honey, the gross weight to approximate 24 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 14.—For the best 12 Sections of Comb Honey, the gross weight to approximate 12 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 15.—For the best 6 Sections of Comb Honey, the gross weight to approximate 6 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 16.—For the best Exhibit of Run or Extracted Honey in jars, not exceeding 2 lbs. each, the gross weight to approximate 24 lbs. First Prize, 30*s.*; second Prize, 20*s.*; third Prize, 10*s.*; fourth Prize, 5*s.*

CLASS 17.—For the best Exhibit of Heather Honey (Comb or Extracted), the gross weight to approximate 12 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 18.—For the best Exhibit of Granulated Honey in jars, not exceeding 2 lbs. each, the gross weight to approximate 12 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 19.—For the best Exhibit of Comb and Extracted Honey, in any form, staged on space 4 ft. by 4 ft., height not to exceed 5 ft. above the table. The gross weight of each kind to be stated. First Prize, 60*s.*; second Prize, 40*s.*; third Prize, 20*s.*

The Exhibits in this class to be staged by the Exhibitor.

[A Silver Medal, independently of Money Prizes, will be given for the Exhibit most tastefully arranged.]

CLASS 20.—For the best plan and design for an Apiary of 50 Hives on two or more acres of land, to include a suitable building for extracting and general work. The design to show arrangements for growing Honey- and Pollen-producing plants, attention being given to the value of the crops for other purposes. First Prize, 40*s.* and Silver Medal; second Prize, 20*s.* and Bronze Medal.

CLASS 21.—For the best Diagrams suitable for a Lecture on Bee-keeping, or Technical Lessons in Rural Schools. First Prize, 40*s.* and Silver Medal; second Prize, 20*s.* and Bronze Medal.

CLASS 22.—For the most interesting and instructive Exhibit of any kind connected with Bee-culture not mentioned in the foregoing Classes. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

The Council reserve to themselves the right to publish for Educational purposes any Exhibit entered in Class 20 and 21.

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Editorial, Notices, &c.

THE ETHICS OF BEE-KEEPING.

Many of us are apt to measure the benefits accruing from any particular pursuit by the weight of actual monetary profit only, always reckoning the pros and cons, and cramping up the profits and losses within the limits of £ *s. d.* We rarely think of the many collateral advantages we are deriving and enjoying perhaps at the very moment when the cash balance-sheet shows a disagreeably adverse margin. Were one able to recognise in apparent disaster the indirect and imperceptible influences on the mind for good, how much better one could bear misfortune! So that if we search through our pursuit for crumbs of philosophic comfort—and this can appropriately be done at the end of such a year as 1888—we shall surely find the mind refreshed and strengthened by our discoveries. Some of the happiest thoughts have entered our mind as we have watched our bees coming home at the closing in of a hot summer's day; at such a time a sweet calm steals over us as we are filled with love and admiration of the works of the Creator; the surroundings, the rising mists from the valley, the streaky bands of purple and golden cloud in the western sky, the occasional flutter of leaves stirred by the breeze which always springs up at sunset, lend themselves to the spirit awakened by a contemplation of Nature. Time flies, and we return to our books, filled with thankfulness for the blessings bestowed by a bountiful Providence. Who has not felt better in health and spirits from an hour's 'observation' in the early morning, when the sun and the bees are racing which shall drink up the best share of the moisture dripping on the alighting-board, or hanging like gems on the margins of roof and perch? What bee-keeper is there who cannot recall his 'sallet days,' when, filled with the trepidation and trembling felt on first opening a hive 'all by himself' how truly the saying 'Familiarity breeds contempt' was exemplified in himself by repeated manipulations? At his first (aye, and on some subsequent attempt) he feels full of nervous flutter, and has to patiently practise the cultivation of a placid calmness almost equal to the stoicism of a North-American Indian. He knows full well he will have to 'take his waak' of stings sometime, and has to simulate a sublime indifference which must be the resultant growth of hours of heroic suffering. Should his first attack of bee-fever be a bad one, he, perchance, boldly determines to purposely get severely stung so as to sooner partake in the immunity from pain supposed to result from repeated inoculation; he unwisely runs risks which end in his being taught highly salutary lessons of initiatory caution. How 'fools rush in,' &c., he soon perceives as he gains practical acquaintance with his bees, and the correct method of manipulation. Ignorant or self-opinionated bee-keepers will artificially swarm weak stocks, spread brood in unfavourable weather, feed slowly in autumn or rapidly in spring, catch the queen with the drones in the drone-trap, destroy the lot, and perhaps write asking if we can tell him the reason of the queenlessness of the hive. He will be guilty of such vagaries as are calculated to make the bee-keeper's angel weep. Yet, after having dearly bought his own experience, should he notice anachronisms in the conduct of others, he runs the chance of being quietly snubbed and sat upon as simply a scientist (and we know how science is scorned by some!); these find the purely practical man the only bee-master, as if the scientific bee-keeper were not also compelled to be practical! Even he, however, is forced to admit the truth of the adage that 'practice is more to be trusted than theory,' and makes in his mind the arithmetical analogy that as labour is to capital in commerce so is practice to theory in bee-keeping.

Any one at all conversant with bee-keeping will recall the courage required in stepping up a rickety pair of steps for the purpose of taking his first awkward swarm. One of his arms is engaged with the skep, the other with the branch, whilst an all-too-trustful partner tremblingly steadies (?) the steps below, uttering wise words of warning meanwhile:—'Do be careful;' 'Mind you don't fall,' and so on. The bee-keeper at this moment calls to mind horrible traditions of the results of an accident at such a moment—disaster which might be brought about by a single bee below, or by a little over-reaching above. To gently carry a swarm down a ladder requires a species of calm firmness that is admirable, and this moral quality may perhaps be purely an outcome of practical bee-keeping. In time, as sure as death and the tax-collector, comes the unavoidable accident, the breaking down of comb, a hive upset, the frantic pony, or what-not, and some such serious trouble may be surrounded with difficulties requiring, to surmount them, the cultivation of an amount of presence of mind and courage not always possessed by the soldier even. To the uninitiated it seems nothing for them to call on a bee-keeper 'unaccustomed to public climbing' at a moment's notice to mount a ladder, and take a swarm or stock out of a very ugly place; called on probably by those who dare not go up the ladder themselves in the first place. Self-confidence and a rapid decision of what is best to be done on a sudden emergency are matters of mental growth with the bee-keeper. The high moral lesson of patient endurance through misfortunes not resulting from his own acts has been taught in this last year to many a disappointed bee-keeper, who can ill afford to see the little hard-scraped savings expended on the hobby he has assured the good-wife is a paying one; it is hard for him to buy sugar for

bees with money that could well be expended on boots for the children; yet, somehow or other, things work round well for both—the weather has kept mild until the boots got bought and the bees are fed to boot.

The flowers have literally this time 'wasted their sweetness,' yet the philosophic bee-keeper is not robbed of the sweets held in the lap of Hope. Ever looking forward to better times in store, his mind is brightened by the prospect: he takes heart of grace and feels a cheerfulness which clings to him even in his business. Sometimes his good humour is positively contagious, and all this because his bees the previous day had a good flight, or a honey-flow had commenced. Surely, too, as he finds from bitter experience how necessary it is for his bees to put by a store for old age and hard times, will he take the lesson home and do likewise! Perseverance is learnt by the bee-keeper at an early period, or it were better he had left the thing severely alone; if he do not soon learn to persevere he soon ceases keeping bees. A bad year, or even a series of them, must not daunt him; his time will come as he calls to mind the Italian proverb, 'Everything comes to him who knows how to wait.' By steadily pegging away on his path he will be recompensed here for his labour, rewarded in addition by enhanced vigour, restored health, and renewed strength of mind resulting from the contemplation of the labour of his bees. There is no end to the number of lessons we may learn in the bee-garden, and we shrewdly suspect some of our parson bee-keepers derive from the bees, year in and year out, many beautiful thoughts which, after due maturing, are brought forth in the Sunday sermon. 'Sermons in stones,' indeed! volumes of them in a bee-hive!

THIRTY YEARS AMONG THE BEES.

By Henry Alley.*

Queen-Rearing.

(Continued from Vol. XVI., page 577.)

Two strong colonies were removed from their hives and placed in the swarm-boxes. When they had been confined about two hours and seemed anxious to be released and in the right condition to commence cell-building, the nucleus hives were prepared and the bees released. Of course they took immediate possession of their new homes. Having a surplus of queens at hand one was placed over an aperture in the top of the hive, and covered to keep the bees from clustering thereon. This had the effect to pacify and quiet the bees, and all indications of queenlessness soon disappeared. At night the queens were removed and cell-building went on.

While the bees seem to be aware of the presence of the queen about the hive, they are not satisfied with that state of things, and commence to construct cells about the eggs given them. The presence of the queen, though caged, is the means of preventing the uneasy bees from destroying the eggs.

The results of such experiments were most pleasing to me, and I consider this plan of cell-building a marked improvement over any previous method given.

By this plan the bees can be removed from a hive and by the time the proper preparation can be made the bees are in condition for cell-building. No time is lost. Let me illustrate. We will suppose that one of the best colonies is at work in the sections. Now this is a good one to select for rearing queens. The bees are placed in the swarm-box, and in the course of two hours that colony will be at work again not only gathering honey, but at building queen-cells. In less than three hours from the time that that colony was disturbed the bees are in the field and at work again as active as ever.

By the old plan the bees were confined in the swarm-box ten hours and the entire day in honey-gathering was lost to them.

If those who have tested the former methods as given in the *Bee-keepers' Handy Book* will try this one, they will readily appreciate the great improvement in respect to confining the bees in the swarm-box.

Considering that bees must be kept in a queenless condition for some little time before they are ready to commence cell-building, this latter method must be considered by far the best one to adopt.

Box-hives and Modern Bee Culture.—In the former editions of the *Bee-keepers' Handy Book*, are given directions for using bees for cell-building that are in box-hives. At this advanced age of apiculture one would be considered far behind the times should he even mention the word box-hive. The old box-hive man is so far in the rear that his way of managing bees is not to be mentioned or thought of. Therefore, all the advice and methods here given are intended to apply to modern bee-keeping, and to moveable comb hives especially.

Controlling Bees with Smoke.—Now let us suppose we have selected for cell-building a colony as above described. They have been fastened in the hive by one of the screens mentioned on another page, and the bees have been taken to the bee-room. It is well known that the smoke of punk (rotten-wood) will prevent bees stinging, but has no effect to keep them from taking wing. Now, to make bees stay on the combs or in a box when brushing from the combs into one, I have found nothing better than a small amount of tobacco smoke. As it is inconvenient to use a small, common pipe for a bee-smoker, I devised a tin one. This pipe, figure 2, has a wooden stopper in each end, and a small tin tube in one of them, through which the smoke is directed to the bees. This smoker is made of light material and is held between the teeth while the hands are at liberty. It is called a fumigator. The fuel used

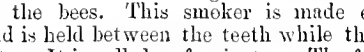


Fig. 2.—Alley's Fumigator.

is cigar clippings which may be obtained of any tobacconist at about twenty cents per pound. This quality of tobacco has the least strength of any manufactured. *It will not do to use strong smoking tobacco about bees.*

While the bees are confined in the hive a small amount of smoke is blown in among them. It is important to have all the bees feel the effect of the smoke, and in order to do that some ten or fifteen minutes should be spent in drumming on the hive and smoking the bees. Only a small quantity of smoke should be introduced at a time. When the bees seem to be getting quiet they are left alone several minutes. Then the honey-board, or whatever is used to cover the frames, is removed and the adhering bees shaken from it into a box. (The box I use is the cap to a Langstroth hive.) The combs are taken out, each one examined for the queen, then the bees are brushed into the box.

As it is sometimes necessary to replace the combs in the hive in the original position, I usually mark them across the top bars at the back end with a nail or pencil.

If the bees attempt to fly out or crawl up the sides of the box, the fumigator is directed that way and a small quantity of smoke will keep them quiet and at the bottom of the box. Occasionally brush them down the sides of the box, and but few of them will attempt to get out or to fly.

As the combs are cleaned of bees they are stood on one end and leaned against some object. In doing this

* The articles of Mr. H. Alley will appear in the *B. B. Journal* concurrently with those in the *Apiculturist*, and Mr. Alley has kindly promised to furnish us with corrected proofs for publication.—Ed.

the frames of brood should be so placed that the brood of one frame will not touch that in another. Should it do so and remain long in that position it would be destroyed.

So place the combs that there will be a circulation of air about them. There is no danger of the brood chilling if the temperature of the room stands at 50°. In cool weather the room should be warmed so that it will be comfortable to one working with his coat off; as it is much easier handling bees in a fairly warm temperature.

Finding the Queen.—If the queen is not found as the combs are looked over, it will be necessary to examine the bees in the box. Unless readily found, I generally take a thin piece of wood, say a piece about four inches long, two inches wide, and an eighth of an inch thick, and push the bees, a few at a time, towards one end of the box. As I do so they are turned over so as to bring the bottom ones to the top. If the queen is not found by one such operation repeat it. When found and caged, the bees are at once placed in the swarm-box.

Disposing of Brood.—If a large number of queens are to be reared, it will be necessary to treat several colonies as above, say about two each day until the number to be used for cell-building is in operation. It will be necessary, of course, to dispose of the brood taken from these colonies. My plan is this:—All the combs that have only capped brood in them are placed in the weakest colonies, and the uncapped brood is given the strong colonies; thus it will be seen that a large amount of brood is easily disposed of to the best advatage if there are thirty or more colonies in the apiary, and no one should appear to rear queens with a less number.

By distributing the brood of six or seven full hives as above, some very strong stocks of bees will be the result in a short time.

To make the matter so that all will understand it, we will suppose that six or more colonies have been working on queen-cells and that the cells are capped. Just at this time it is necessary to start more cells, as it will not do to let even one day pass by without preparing for more or less queens, that is, if one intends to fill his orders promptly and also keep a good supply of queens on hand. Now, proceed as follows:—Brush all the bees from the combs of another hive: replace the combs in the hive and take to a stand that is occupied by one of those used for cell-building; remove the latter a few feet ahead and put the former in its place; take several of the combs from the hive having the cells (not those combs having the cells on them) and shake several quarts of bees from them in front of the empty hive. As they run in, let a fertile queen go in with them. When all, or about all, the bees are in, a little smoke should be blown in the hive at the entrance, as that will prevent the bees from molesting or killing the new queen.

The combs on which the cells are built, with the adhering bees, may be transferred to a smaller hive, and if not located too far from the former stand, the bees will not desert the cells. To be sure that the cells are being properly protected, the combs should be examined occasionally. If the cells are not well covered, more bees should be added. Thus, it will be seen that by managing the apiary as above, but few colonies need be broken up to start the season, and after the first preparation no colonies need be kept queenless.

If a more practical plan for rearing queens in large numbers or on a more economical scale has been advanced by any one, it has not come to my notice.

Not a Fussy Method.—Though this method may seem rather 'fussy' and troublesome when reading it, yet it is not at all so, as hundreds have stated who have tested it.

There is but one method for rearing queens of which I have any knowledge that is better than the foregoing, and that is the one by which the queens are reared in full colonies without removing or even disturbing the queen. By that method no colonies are made queenless at any time; neither is it necessary to disturb but one comb in the brood-chamber. Though this latter plan is a practical one, yet it will require considerable experience in order to make it successful at all times.

I never saw a person who could take hold of any work with which he had had no previous knowledge and make it a success. Practice and experience are the requisites of success in any undertaking or enterprise—certainly one must have considerable training and experience in order to succeed in anything connected with bee-culture.

Placing the Bees in the Swarm-box.—I will now go back and take up again the subject of queen-rearing. We had proceeded so far as to get the bees in a receptacle ready to 'dump' into the swarm-box.

Before the combs from which the colony just been taken are placed in the hive and made ready to remove to the stand, the bees should be cared for. Jar them down into the bottom of the box and then strike it endwise on the floor to force the bees into more compact quarters. Then at once put them into the swarm-box as one would turn a quantity of corn from one box into another.

Place the box in a cool place until the bees realise their queenless condition, which will require not far from two hours.

How to Prepare the Nucleus Colony.—A nucleus hive adapted to three standard Langstroth frames should then be prepared. Two combs, one of which should contain several pounds of honey, and a quantity of fresh pollen, are placed in the hive. One must be certain that there are no eggs or larvæ in any of the cells of the combs used, as if even one cell contains an egg the bees will certainly utilise it from which to rear a queen; and if a young larva is present in any cell, a queen would most likely be reared from that. If a queen is reared from the latter she would certainly 'hatch' several days before the queens are due that would be reared from the eggs given. The result would be the destruction of all the cells built from the eggs placed in the hive, unless they were removed several days before they are matured sufficiently to be handled with safety.

This illustrates the difficulty that is sure to attend the operations of a careless person who undertakes queen-rearing. Such persons ought not to adopt the bee business, anyway.

If the same combs are used in the cell-building hives all the season, there will be no danger of 'unknown' eggs in them.

Do Bees remove Eggs from one Cell to Another.—It is often said that bees remove eggs from one cell to another, and from one comb to another, and then rear queens from them. I am certain nothing of the kind ever has happened in my apiary, and it seems to me that no bees ever have had a greater opportunity to do this, and thus prove the correctness of such statements, than I have given them in my methods of queen-rearing the past quarter of a century.

I have never known the bees to construct queen-cells except from the eggs given them and in the location they were placed. The old and common-place methods for rearing queens as given in nearly all the bee-papers and standard works on bee-culture of the present day are well known to those who take an interest in bee matters, and I need not repeat them here, and certainly will not unjustly criticise them. Those methods were the best and most practical known until within a few years. Many dealers in queens practise them to-day, and seem to succeed to a certain extent, yet they were not satisfactory to me, nor could I rear queens by them in sufficient numbers to fill the orders that would come in by every mail. Then, again, the expense in bees and labour by those methods was an item worth considering,

and I also found most too much night work to suit me about those ancient ways of producing queens.

Building Cells in Clusters.—As a matter of course the reader understands that by such methods queen-cells are built in clusters, as illustrated in figure 3

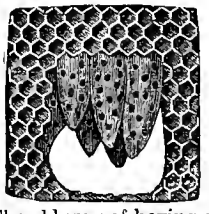


Fig. 3. The old way of having cells built.

And it must be evident to all that it is impossible to separate the cells built in that way without destroying many of them. When this is the case, how is it possible to rear queens and make the business a success? Here is another point that comes up here. The number of queen-cells that are likely to be built is very uncertain. A strong colony when properly prepared to rear queens by the days-gone-by methods may build five cells and they may build a dozen cells; there is always existing an uncertainty about it, and those who rear queens by the old methods know there is a great uncertainty, too, as to the time when the young queens are likely to emerge from cells thus built. This is due in a great measure in not being positive as to the time the eggs were deposited.

(To be continued.)

BEE-KEEPERS' VOCABULARY;

Or, Glossary of Technical and Scientific Words used in Works upon Bee-keeping.

Body-boxes. *n. pl.* (*Sax. bodig*, body, and *box.*)—Applied to the shallow, divisional boxes of Stewarton or other storifying hives, set apart as brood-chambers, and which form the main part of the hive. Generally two are used and they are interchangeable; also sometimes called *breeding-boxes*, or brood-chambers.

Bombilate. *v.* rare. (*L. bombilare*, fr. *bombus*, hum.)—To hum; to buzz.

Bombilation, bombulation. *sb.* (*L. bombilatio.*)—Humming, buzzing; droning sound.

Bombile, bomble. *obs.* forms of Bumble.

Bombus. (Onomatop.)—Latin name (fr. *Gr. bombos*, humming) for a genus of large-bodied hymenoptera, known as humble-bees. The genus contains, according to F. Smith, seventy-nine distinct species, some of the species having several names. The following out of eighteen British species are those most commonly met with:—Bombus muscorum, Bombus terrestris, Bombus hortorum, and Bombus lapidarius.

Bombylious. *a. obs.* (fr. *L. bombylius*, a humble bee.)—Buzzing; humming; like a large bee.

Book-hive. *n.* (*Sax. boc*, fr. *bugan*, to fold.)—The folding hive of F. Huber, in which the combs were built in frames, hinged the one to the other. In this way the combs became moveable and the hives could be used for observation purposes; also called *leaf-hive.*

Boom. *v. intr.* (fr. Du. *bommen*, to boom, to give out an empty sound like an empty barrel. An imitative word, allied to *L. bombus, Gr. bombos*, a humming.)—To hum, to buzz as a bee.

Borax. *n.* (*Ar. borak*, fr. *baraka*, to shine.)—A mineral salt used in the preparation of a remedy for foul brood, to render salicylic acid soluble in water.

Bottle. *n.* (*Fr. bouteille.*)—That part of the alimentary canal denominated the honey stomach; it was called *bottle* by Butler, Gedde, and other old writers.

Bottle-feeder. *n.* (*Sax. fedan.*)—Wide-necked glass vessel used for supplying bees with syrup, usually placed inverted on the top of the hive, the mouth being covered with perforated metal or a piece of muslin, through the holes of which the bees suck down the food.

Bottom-board. *n.* (*Sax. boton*, base, and *bord*, breadth.)—A board which forms the bottom of the hive, and may be either fixed or moveable; floor-board.

Bottom-rail. *n.* (*W. rhail*, a bar.)—The lower horizontal bar of a frame.

Bouton. *n.* (*Fr.*)—The circular and slightly concave portion of the tip of the tongue which is provided with split hairs for taking up minute quantities of nectar; also called the *spoon.*

Bowel. *n.* (lat. *L. botellus*, sausage.)—Intestine; the portions of intestinal canal contained within the abdomen.

Bowel-distension.—Enlargement of the abdomen from the inability of the bees to discharge their fæces. See *Abdominal distension.*

Box-hive. *n.*—A hive consisting of a plain inverted box, sometimes provided with cross sticks to prevent the combs breaking down, and a hole in the top to admit the bees to a super placed above.

Box-honey. *n.* (*Heb. yhonig*, delight.)—Comb honey stored by bees in boxes, or sections.

Box-fumigator. *n.*—A metal tube flatened at one end, having a box in the centre into which fumigating materials were placed, the smoke being driven into the entrance of the hive by blowing through the other end.

Brace-combs. *n.*—The connecting pieces of comb which bees build when the space allowed for them to pass is too large. See *Bee-space.*

Brain. *n.* (*Sax. broegen.*)—The convoluted mass of nervous substance or ganglion, situated in the head, at the extremity of the ganglionic chain, and shown by Dujardin to be the seat of intelligence and sensation; the supra-œsophageal ganglion; the cephalic ganglion.

Braula cæca. *n.*—A wingless and blind louse belonging to the order Diptera and family Braulina (Gerstaecker), parasitic on the honey bee, more especially in Southern Europe. See *Bee-louse.*

Bread. *n.*—See *Bee-bread*, for which it was used by ancient writers as an abbreviation.

Breast. *n.* (*Sax.*)—The anterior parts of the thorax or middle division of the body; sometimes applied to the thorax.

Breathe. *v.* (fr. *Sax. broeth*, odour, breath.)—To draw into and eject air from the body; to respire through the spiracles and tracheæ.

Breathing-apparatus, or system.—This consists of an intricate system of air-tubes or tracheæ which commence at the openings or spiracles situated on each side of the body of the bee. The tracheæ in adult bees enlarge into air-sacs which lie in the anterior part of the abdomen. See *Air-sac.*

Breathing-tubes. (*L. tubus*, a pipe.)—The air-tubes, or tracheæ. They consist of two layers of membrane between which run spiral threads. The tubes are kept open by the spirals which make them very elastic and enable them to be compressed so that the quantity of air they may contain varies with circumstances.

Bred. *p.p.*—Generated; produced; hatched from the egg; nourished; brought up.

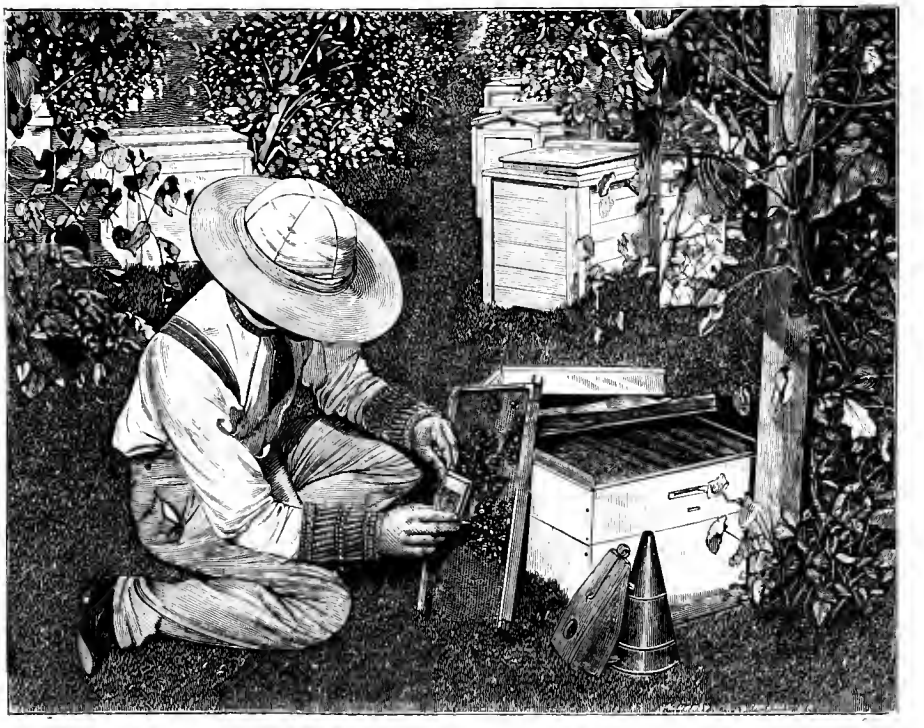
WITH THE AMERICAN BEE-KEEPERS.

By Thomas B. Blow, Welwyn, Herts.

(*Continued from p.* 6.)

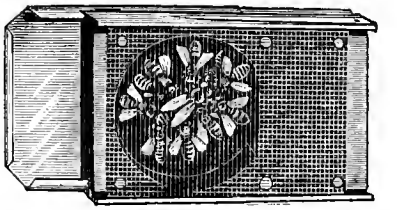
Palmer House, Chicago.

Now, Doctor, I want to know how you prevent swarming? The reply was that if he as a bee-keeper was privileged to ask one question on bee-keeping, and was assured of a correct reply to that one question, it would be, How to effectually control swarming? Countless experiments have been made here, and the results, more or less satisfactory, are as follows:—The bees being divided up into three or four apiaries before the honey-flow commences, it is absolutely necessary that something



Dr. Miller finding and caging the Queen.

should be done at least to prevent the loss of swarms, as it would be out of the question to have people watching at all the apiaries during the whole swarming season. The first and foremost item in the swarm preventing, or, I should say, the loss of swarm preventing arrangement, is to keep all the queens with clipped wings. This ensures that if the swarm issues, it will not be lost, but will, in most cases, soon return to the hive. If the watcher is on hand, he will usually find the queen near the hive, and she is caged, put back in the hive still caged, and so kept for ten days, then set at liberty, the queen-cells in the meantime having been cut out on the fifth day, and again on the tenth day, when the queen is set at liberty, and the bees will then rarely again swarm. This plan, with slight variations, was tried for some considerable time, and at last gave place to the following, which is found to work well, and not nearly so much valuable time and trouble is wasted by it. This plan at the outset is perhaps a little more trouble, but it relieves the bee-keeper from the bother of having after to look for and cut out the queen-cells, as the bees will invariably do this themselves with the present plan:—The swarm issues, and queen falls down near the hive. She is caged and placed in some part of the hive where the bees can get to and take care of her—maybe on top of the super, or almost anywhere handy. The stock is then ready for treatment, though the treatment need not be applied at once, but at any time during the following five days. The hive will possibly be supered; if so, take off the super, and place most of the brood combs in an empty hive. In the old hive left on the original stand there are left or placed three combs, great care being taken that these combs have no queen-cells in them. A dummy and division-board is placed by these, and the super put on again. About half the bees are shaken off the combs, or we remove them, and these bees of course run into the original hive on the old



Dr. Miller's Queen-cage.

stand. The hive into which we have put the brood-combs is then stood on top of the original hive, and the queen is let out of the cage, and hive covered up. There will be plenty of bees to care for the brood, the queen will go on laying in the upper hive, and the bees will abandon all thoughts of swarming, and tear down every queen-cell. This operation Dr. Miller calls 'putting up the

queen,' from the fact that she is placed in an upper hive. Now, in ten days she is put down again—that is, put in the lower hive—in the following way. The upper hive is lifted off, and put on the ground, and the supers all taken off the lower hive; then remove the lower hive off its stand, and put the upper hive in its place. Put the supers on this, and cover up, and all is done.

The old lower hive, which had the three combs in, now remains for further treatment, and we could of course make this useful in a variety of ways. If we were in need of queen-cells raised from any particular favourite queen, or from any imported queen, we could, at the time of dividing the stock, have placed in a comb of eggs, and, by the time we 'put down the queen,' these eggs would be converted into queen-cells ready for any purpose that we need. Or we can start a new colony from the nucleus we formed; or, if there is no need of either queen-cells or new colony, then we can shake off the bees from the three combs and let them rejoin the stock, which they will do without making any trouble at all. This plan has taken a long time to describe, and appears somewhat complex, but Dr. Miller says he finds it little trouble, and of very great service, and none of the valuable time of the queen is lost, but she always continues laying. I asked Dr. Miller whether he had any experience in controlling second swarms by the plan I mentioned in my last, and he said he had tried it with great success.

Foul brood is unknown here; in fact Dr. Miller has never seen it, and does not wish to. Neither does he approve of contraction of stocks for wintering purposes. He just inteuds to keep his stocks on eight frames all the time. Of course it must be borne in mind that the eight Langstroth frames are more than equal to the ten standard frames, which is about the usual number in use with us in England.

The following statement will give some idea of the crops as they follow here:—

April 4.—Bees all out of cellar.

May 8.—Plum bloom. Bees will still take syrup and flour.

May 10.—Wild plum, dandelion, cherry, pear.

May 31.—First clover bloom.

June 5.—Apple bloom now over.

June 12.—Supers put on.

June 13.—Clover fully out.

June 20.—Locust-tree in flower.

August 1.—Clover nearly over.

August 5.—Honey-flow short, and robbers giving trouble.

There are very nice workshops for all the various operations, and Dr. Miller has an able assistant in the shape of his wife's sister Emma, who is able to take sole charge of every department if needed.

To the temperance readers of the *B.B.J.*—I know they are many—it will be of interest to mention that Dr. Miller and all his family are Prohibitionists, and that Local Option has been in force in Marengo for a long time. I think he said that for twenty years there had not been a saloon in the town. We had a long talk over the great falling off of the Prohibitionist vote at this general election, and Dr. M. held that the promises or baits that each of the political parties held out were the cause of the very small vote in comparison with that of four years ago. He personally did not believe in the promises of either the Democrats or Republicans—they got the vote, and then forgot the promises. He voted straight for Fisk and Brooks, the Prohibition candidates, and though the vote was thrown away, yet he did not regret it, as he felt sure of the goodness of his cause, and that it must ultimately triumph. I took leave of Dr. Miller feeling that I had had a real good time with a happy man, and I would advise all bee-men who visit the States to make a call there, and they will be welcome.

[*To be continued.*]

Foreign.

CANADA.

Up to date (December 18) we have had but little cold weather, although it has been changeable. The result will doubtless be that colonies will draw heavily upon their winter stores, and very many colonies will starve before spring that might have survived if the temperature had been more equable. With colonies in the cellar or some other warm repository the changeable temperature had not the same effect. My bee-cellar stands almost at 47 deg. Fahr., and has been there ever since putting in. The hives are tiered, four high, and in such a way that a current of air can pass between the top and bottom of every hive. Each pile stands separately again, so that one may be disturbed without disturbing any of the others. I have passages to enable me to get in front of and behind every hive. I find by taking the lamp into a cellar and allowing it to shine into the entrance that the bees are clustering very quietly, and are apparently in the best condition to consume but little stores and lose little vitality. I see in America many of our leading bee-keepers appear to think that bee-cellars require no ventilation, but I beg to differ. Air forcing its way into a cellar in any way is ventilation. The law of plant and animal life is certain in this respect, and animal life such as that in the bee must be maintained by means of oxygen, doubtless the quantity required will be in proportion to the activity of the bee and the amount of food it consumes; but all this is no proof that when in the quiescent condition it requires *none*, and I predict that ere long we shall be satisfied that bees without ventilation perish, or that the atmosphere forces its way into the repository when the bee-keeper may imagine that there is no ventilation. What is strange about the report appears to be that towards spring the bees become restless and ventilation must then be given; now it is probable that the bees then become restless, and, as their activity increases, so does the required volume of oxygen increase, but let us consider the difference otherwise. In winter the temperature outside is often zero, whilst that in the cellar is from 45 deg. to 50 deg., the pressure between the outside and inside with this difference becomes great, and ventilation or a circulation is established which does not exist when spring approaches and the outside and inside temperature are about the same.—R. F. Holtermann.

CALIFORNIA.

Bees have ceased working for the season, as all kinds of bloom have ended. The foliage of the surrounding forests has begun to exhibit the hues and tints of autumn. The birds have gone further south for the winter. The air is no longer gladdened by the sound of myriads of insect wings.

The honey-bees are now housed up for winter, and every three or four days they go out for a flight, and circle around for a while, but soon return to the hive. The breeding season has now passed, although some colonies with extra prolific queens have a few square inches of brood. All careful apiarists have prepared everything for winter, covering each hive with a roof to shed winter rains and snow, and giving colonies that are in need of stores sufficient to winter on, &c. Bee-keepers can now take a few days' rest preparatory to getting ready for another season's work.

It has been proved conclusively that the Italian bee is superior to the black or brown bee for honey-gathering in most locations. Having three different apiaries located twelve miles apart, respectively, I have a good chance for observation and study on this subject. I find that at an elevation of 4000 feet and upwards the black bee equals the Italian, or any of the yellow races;

while at an elevation of 1000 to 4000 feet the yellow races do the best.

I find that a cross between the Italians and Carniolans give the best results when working for comb honey at any of the apiaries. A few miles make a great change in bee-locations. For instance, if it is a very wet and rainy season, the foot-hill apiary will do the best, and if it be a dry season, the mountain apiaries do the best. Such has been my experience the last few years.

At the mountain apiaries there is continual bloom from the middle of February to November, keeping the bees busy the entire season. In the foot-hill region the honey season ends in July. I was always bothered a great deal by robber bees in the latter location. After the honey season ends, and the hot weather comes on, bees dwindle down rapidly. I lost several colonies of Italian hybrids and black bees the past season. They would not protect themselves against robber bees. The Carniolan bees did not participate in the robbing, and not a single colony of them was robbed. They are second to none in defending their hives against robber bees. In the mountains I have no trouble whatever with robbing.—S. L. Watkins, *Placerville, Calif.* (*American Bee Journal.*)

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

County Representatives are reminded that the next Quarterly Meeting will be held on February 21st. The Annual General Meeting of the B.B.K.A. will also be held on the same date.

NOTTS ASSOCIATION.

We regret to hear that Mr. F. H. K. Fisher is compelled to resign the post of Secretary to this Association. We are pleased to announce that a successor has come forward to supply the vacant post.

BERKSHIRE BEE-KEEPERS' ASSOCIATION.

Windsor Branch.

The Annual Meeting of the Windsor branch of the Berks B.K.A. was held in the lecture-room at the Albert Institute, on Dec. 13th, at 7 p.m. The Rev. R. Errington presided. There were about thirty members and friends present, including Messrs. A. T. Cooper, A. D. Woodley, W. B. Webster, &c.

The minutes of the last annual meeting were read, also the annual report for past year, which, after slight alterations, was adopted, the number of members being now fifty-five, against fifty-two for 1887. The following Committee were elected for 1889:—The Rev. R. Errington, Messrs. G. P. Cartland, W. S. Darby, W. Carter, G. Carter, H. Willis, and W. H. Augur.

Mr. W. B. Webster then gave a short lecture on 'Foul Brood,' illustrated by a fine water-colour drawing, which he had prepared for the occasion, of a piece of comb about 100 times full size, showing both diseased and healthy brood in various stages. He also described a method of detecting whether a comb had contained foul brood, and gave a new recipe for candy. Various questions were asked, and a hearty vote of thanks was accorded to the lecturer.

Refreshments were then handed round, after which the Rev. R. Errington invited an expression of opinion on the *British Bee-keeper's Adviser* and the *Berkshire Bee-keeper*. Several members of the local committee advocated the *British Bee-keeper's Adviser*, while Messrs. Cooper and Woodley strongly upheld the merits of the local journal. On a show of hands being taken, a large majority of the members of the district showed themselves to be very strongly in favour of the adoption of the *British Bee-keeper's Adviser*.

A draw for fifteen prizes then took place. Owing to the absence of exhibitors at the Show in August a balance remained in hand, which the Committee had decided to distribute in this way.—W. H. Augur, *Hon. Sec. Windsor Branch B.B.K.A.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts* (*see 2nd page of Advertisements*).

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

HONEY IMPORTS.

The total value of honey imported into the United Kingdom during the month of December, 1888, was 30331.—John Courroux, *Statistical Office, H. M. Customs.*

NOTES FROM EAST YORKSHIRE.

[1948.] *Hives.*—As the time for 'bothering with the bees' is now over for '88, perhaps some good may be done in discussing such questions as best hives, &c., and putting our ideas into practice ready for another year. To my mind a hive with a body holding twelve frames and a ¾-in. space at bottom is about the best all-purpose hive made. The reason why I like this ¾-in. space at bottom is that in winter dead bees, refuse, &c., can fall below frames without preventing a good current of fresh air, and in summer the hive will not need wedging up if a 'full width' entrance is given. Brace combs will never be built if each hive is properly manipulated at seasons of the year when most necessary.

Quilts.—I like the impervious quilts next to the frames much better than pervious ones for wintering, and have never had an accident with them yet, while I have lost many under pervious quilts. If it be natural for bees to close up all cracks, &c., when left alone, then we should try and assist them in their natural habits, and this, to my mind, is not done with pervious quilts unless they are propolised all over by the bees. If, however, impervious quilts are given them, more than half the work is done for them. The heat too is conserved better, and as to damp, I don't think that need trouble any one who has *good* hives and strong stocks of bees in each one of them.

Wintering Nuclei.—I have tried this, and am well satisfied with the results. There are not many bee-keepers who keep a quantity of hives but lose some of his queens during winter, or for some other reason would be glad of young fertile queens in early spring before any can be hatched. My *modus operandi* with nuclei for winter is, put the bees on at least three frames of food in centre of hive with frames hanging parallel to entrance, then put a close fitting dummy on either side, with a 1½ in. entrance cut in the one next the front. In the space between the cluster and front of hive, place two strips of wood 1½ in. thick, which shall act as ledges, and on these a board. The bees can now run in and out if necessary, and ventilation is kept up. Into the spaces at both back and front put cork-dust or chaff, cover up with warm material, and all is safe. I have found when opening such hives in April

that there was much more brood than in some of the larger stocks, and by the time the clover was in bloom these have been among the strongest. Of course young queens have been in every such hive. Besides, young queens are always valuable in the spring, and if by any means we can preserve them, then it is to our interest to do so. If we wish to unite, we can easily dispose of the spare queen, or we have a better choice among the greater quantity retained.—COTTINGHAM.

IS THE VENTILATION OF HIVES YET PERFECTED?

[1949.] The ventilating arrangements which our architects and builders provide for our houses in general and rooms in particular, are, from a scientific point of view, far below those of the lowest type of savages as yet interviewed. The escape of vitiated air is left to chance, but every chance, the removal of which does not involve additional expense, is carefully blocked. This is no reason, however, that we should retaliate on bees. Moreover, their paying powers largely depend on proper ventilation, it being one of the essential factors in their well-being. In summer, if the ventilation is too little, time is wasted in fanning, and the bees cluster outside. In winter, if the ventilation is too little, condensed moisture is not carried away, and diseases supervene: if too great, bees die off; and in case of winter brood, it gets chilled; in either case spring dwindling ensues. There is, then, no apology necessary for urging that the ventilation should be considered on scientific principles, and if common sense puts in a claim as sufficient, be it remembered that common sense, if worth anything, is only science arrived at in an unscientific way, and that it very soon gets out of its depth.

Let us examine the factors at hand for the regulation of hives, and in so doing let all disturbing influences of the wind be left out of consideration, as having to be dealt with otherwise.

I. The *motive power* must, from the circumstances of the case, be the common one furnished by the expansion of air under the influence of heat, and the consequent difference in weight between a given quantity of warm and cold air. (Air expands $\frac{1}{490}$ for every degree.) A hot column of air in a tube, such as a chimney or a bee-hive, if surrounded by a mass of colder air, ascends with a rapidity which varies with the difference between the two temperatures, and the height of the column of hot air. The greater the difference between the two temperatures, the greater the rapidity of the upward movement, while a greater height of the heated column slightly retards, although it steadies and gives power to, the total mass within.

Now the heat of the column of air in a hive is, theoretically, a fixed quantity, viz., about 85° F., this being reckoned to be about the temperature at which the blood-heat of the bees keeps a hive if there is no disturbing influence, such as wind, or the excitement previous to swarming. It necessarily follows that on a hot summer's day, when most ventilation is needed, then it is that the motive power is the least and the ventilation least, and frequently *nil*, because the outside temperature approximates to, or exceeds, the inside temperature; and, secondly, that in winter, and on cold summer nights, when least ventilation is needed, then it is that the motive power is strongest, as the normal temperature inside will be about 85°, and outside 50°, 40°, 32°, or lower. This at once involves the conclusion that if a steady temperature within is necessary for the well-being of bees, *it must be controlled artificially.*

II. The principal, and perhaps, practically the only, controlling power at hand, is the size and number of the apertures left for the passage of the heated air inside. Although exact statistics are of no very grave moment in this matter, yet it may be mentioned that if the formula given in Brand and Cox's *Dictionary of Science* has been worked out correctly, the column of hot air inside an ordinary Langstroth one-storey hive would move upwards at the rate of 6 in. per second if the temperature outside was 80° F., and at the rate of 30 in. each second if the temperature outside was 30° F. But this implies a perfectly unimpeded means of entrance and exit, such as is supplied by the open fireplace and top of a chimney. Every inch of glazed mat, or of the superficial extent of the aggregate of the threads of a porous mat, lessens the velocity of the passage of the heated air, and consequently tends to keep the air in the hive more and more at rest. Moreover, as the cold air enters, the difference between the two temperatures is lessened, and consequently the rate of the ascent of air at once diminished. It is not until the bees have again been able to raise the temperature to its normal state that the power of the motive agent at the start would be again exerted. Again, the friction against the frames, bees, combs, and threads of the mats, all diminish the rate. It would, therefore, obviously be impossible, owing to the variety of changing conditions, to draw up in a tabular form the exact number of times in which the whole interior atmosphere in a hive will be changed in each hour at various rates of temperature outside. However, it is of such grave importance that the hard facts of the case should in some visible way be realised, that the following table, in which 200 per cent is allowed for retarding purposes, is presented:—

Temperature inside the Hive.	Temperature outside the Hive.	The approximate number of times the air inside will be changed every hour, with apertures in the mat of the aggregate of			
		(A) 6 sq. in.	(B) 4 sq. in.	(C) 2 sq. in.	(D) 1 sq. in.
		times	times	times	times
85° Fahr.	80° Fahr.	75	50	25	6
85° ,,	60° Fahr.	154	103	53	13
85° ,,	40° Fahr.	225	150	75	18
85° ,,	30° Fahr.	250	166	83	20

The above table is based on the formula above referred to, and on the assumption that there are about 1000 cubic inches of air inside a hive, and that friction, &c., may diminish the theoretical rate by some 200 per cent. With reference to the aggregate size of the interstices in mats, (*a*) 6 square inches would imply that in each square inch of the mat there were about twenty interstices, each $\frac{1}{10}$ in. large, perhaps represented by very coarse scrim; (*b*) four square inches would imply that in each square inch of the mat there were thirty-two interstices, each $\frac{1}{24}$ in. large, represented by finer scrim; (*c*) two square inches would imply that there were in each square inch of the mat, about forty-eight interstices, each about $\frac{1}{40}$ in. large, represented perhaps by coarse washed calico; (*d*) one square inch would similarly imply about sixty interstices, each $\frac{1}{60}$ large, represented by finer calico.

Assuming, then, the above calculations to be sufficiently correct, we can get a tolerably clear idea of what takes place in a hive on a typical summer's day, or a typical winter's day. In summer, with a common scrim mat, as represented by (*b*), in the daytime, the mass of air inside would either be stationary, owing to the sun's heat being 85° or over (the usual state of things under the direct action of the sun's rays, that is, not in the shade), or changed about once a minute, but without much change of temperature. In the evening and night of the same day it would be changed two or three times every minute, and this to a temperature of from 40° to 50° F., quite as much as can be good for the brood. On a typical winter's day, with a mat of the same porosity,

the air will be changed about once and a half every minute to a temperature below 85°, of, say, 65°, and in the night time about three times every minute, and this to a temperature freezing, or nearly 30°.

It must therefore be taken for granted that there ought to be some check to the ventilation both in evenings of summer days and still more in evenings of winter days, even though in winter additional mats are put on, and so the evil somewhat diminished. It cannot be good for the brood in summer to be from eight to ten hours in our usual night temperature, even though it be mitigated by the presence of a large number of bees on the brood-combs. Still less can it be good for the bees in winter to be in our chilly New Zealand night air. Either by direct manipulation, or by some self-acting simple mechanism, there ought to be some stoppage of the passage of the warm air in the latter cases.

Some further suggestions as to ways of obtaining this end I hope to have an opportunity of making; for the present let it suffice, if the grounds for necessity of some such contrivance shall have commended themselves to the minds of bee-keepers.

NOTE.—One fact in connexion with the motive power evolved by the expansion of air when warmed has only been casually noted above, owing to its very limited applicability to the Langstroth hive, and that is, the slightly retarding, but at the same time steadying, effect of a *long column* of warm air, which gives a powerful pull to the whole. A homely instance of this is the better draught obtained by a tall chimney over that obtained by a short one. The contrary effect is shown by the extordinary power of a long column of water, even in a tiny pipe, as those who try with their fingers to stop the kitchen tap, supplied from a cistern or reservoir, can testify. The Stewarton hive, which, although not known over here, and not much used in England, produces a most astonishing amount of honey, probably owes its success to this principle, and not to its shape. It is hexagonal, but runs up to six, eight, or more storeys. This length of hot air enables the mat to be very fine, as the power evolved forces the air through its pores. Extreme steadiness is thus obtained, and in cold nights and wintry days the ventilation is very slow but regular—just what is wanted.—J. R. M. (*The Australian Bee Journal.*)

VIRGIL, AND THE MANAGEMENT OF BEES.

[1950.] Classic experts unanimously place Virgil in the first rank of poets. His Georgics are by far the best of his poems, and the fourth Georgic, on the 'Management of Bees,' is the most beautiful of them all. It may fairly lay claim to the distinction of being the finest poem which ever appeared. Unfortunately Virgil is usually forced at school on boys who are unable to appreciate his beauties, and his name and sonorous lines are so often associated with impositions and tears as to prevent even educated men in after-life from taking the Georgics down from their library shelves. Of course there are exceptions. The author of *A Year with the Birds*, who is my neighbour here, writes that the ability to read and understand Virgil is one of the things which make life worth living. He has devoted a chapter to Virgil's birds, and has come to the conclusion that the poet was practically acquainted with the birds he mentions.

Whatever may be said about his acquaintance with birds, it is difficult to imagine that Virgil's acquaintance with bees was otherwise than on a par with Goldsmith's knowledge of natural history in general.

'*Johnson.*—Sir! Goldsmith is about to give us a work on natural history; and although he can barely distinguish a horse from a cow, we shall have a book entertaining as a Persian tale.'

The fourth Georgic is certainly a very entertaining book for those who can read and understand it. To modern bee-keepers it is particularly interesting, as giving some idea of hive management nearly two thousand years ago; and as sugar was unknown, bee-keeping was probably a much more important industry than it is now.

Of course it would be idle to expect Virgil to be acquainted with the true history of bees, and therefore current delusions regarding them, only corrected centuries later on, may pass without comment; but if Goldsmith could distinguish a horse from a cow, Virgil does not appear to be able to distinguish a humble bee from a hive bee;* and it is difficult to imagine that any one who has manipulated bees for a single season would say that tall trees are suitable for bees to swarm on,† or that a swarm will invariably take possession of a hive duly anointed with certain herbs when guided to it by the sound of tinkling cymbals.‡ Virgil does not say whether bees were burnt in his day, but, as he mentions two honey harvests in the year, and recommends the use of smoke to quiet bees it would appear that some system of depriving the hives of honey without destroying the bees was in vogue then.

Since I set up an apiary, not very long ago, I have read the fourth Georgic with considerable assiduity; and as I have amused myself with condensing its directions to persons about to keep bees in the century which preceded the commencement of the Christian era, it may not be without interest to produce these directions here, in order that during this dull season those who have not the opportunity or inclination for reading the original, may compare them with the directions given in *Modern Bee-keeping.*

The received translators of the fourth Georgic, so far as I have had access to their works, not being practical bee-keepers themselves, are apt to draw on their own imaginations.

Dryden, in describing the bees suffering from famine, says:—

'And crowds of dead, that never shall return
To their loved hives, in decent pomp are borne;
Their friends attend the hearse, the next relations mourn,'

which is coming it rather too strong, even for Virgil.

NOTES ON THE MANAGEMENT OF BEES, TAKEN FROM THE FOURTH GEORGIC OF VIRGIL.

Persons proposing to keep bees should select a site where the hives can stand in the vicinity of large trees, for these serve the double purpose of affording shade and alighting places for the swarms in spring.

The site also should be sheltered, for high wind obstructs the bees when they return laden to their hives, and although they not unfrequently carry little stones as ballast to steady their flight in rough weather, yet they are liable to be blown into the water, which should always be provided for drinking purposes near the hives. The best way to avert accidents is to place projecting stones in running water, and floating willow twigs where the drinking water is stagnant, for the bees can scramble on to these extempore bridges when they get submerged, and dry their wings in the summer sun.

The apiarist's numerous creeping and winged enemies must be kept at a distance. Among insectivorous birds, the swallow is particularly destructive. Give her the chance, and she will rear her young ones upon bees. Nor are these the only precautions to be taken. On no account should yew-trees be permitted near the hives, nor evil smelling swamps and mud; even a site where there is an echo should be avoided.

The most fitting situation to choose for bees is the neighbourhood of gardens where the yellow spring flowers

* See line 43. † See line 24. ‡ See line 66.

abound, where the fir tribe flourishes, and where wild thyme, lungwort, and numerous other plants, afford a banqueting ground for the bees.

Having selected a suitable site, the hives will be the next care, and these, whether made of cork-bark or briars, must have a narrow entrance to guard against extremes of heat and cold. The bees themselves will cement all internal chinks, but the master will do well to plaster the outside of his hives with mud and a few leaves.

In the spring the hive will send out a swarm, and then the master must be on the alert, and prepare a hive scented with sweet herbs, and he must tinkle cymbals, and then instinctively the bees will take possession of their new abode.

The great secret of success is to keep the king within the hive. No race of men are so impressed with the 'Divine right of kings' as are these humble insects. So long as he is present, all goes well, but without a king utter ruin falls upon the hive.

A simple remedy for preventing the king from leaving his admiring subjects is to clip his wings.

It not unfrequently happens, however, that when the swarm issues there are two rival kings, each followed by his respective partisans. In such case a tremendous commotion ensues, and each side prepares for battle; the pigmy warriors brandish their wings, and whet their stings upon their beaks. Suddenly they charge, and, locked in deadly embrace, they fall down headlong, thick as hail or acorns from a shaken oak. A little dust thrown into the air will put an end to the combat, and then the wary master will select the best of the rival kings and kill the other. He will have no difficulty in discerning which to choose, for one has a bright burnished appearance, the other has a bloated form, hideous to behold.

The subject bees, too, differ in appearance. The best kind for making honey have a bright golden sheen, and are equally spotted. The other kind are unpleasant and rough-looking, like thirsty tramps who have been trudging along a dusty road on a hot summer day.

Directly the swarm is fairly established work is commenced in earnest for the common weal. Some bees are told off to gather honey in the fields, others are appointed to guard the hive, observe the weather, and receive the burdens from the comers-in. Some look after the rising generation, and a band is enrolled to expel the drones. The work goes briskly on till night, when the hive is hushed in repose. Next morning all is life and energy again; the stores of honey are redolent with thyme. Honey may be taken twice during the year—in early summer and autumn. The bees work all the harder where the honey is taken. These should be well smoked in order to quiet them when these hives are opened, for on such occasions they are very ready with their stings. Superfluous wax should be cut out of the hives before winter comes, as it would harbour drones, the wax-moth, and other vermin; the hives should also be well fumigated.

Unfortunately bees, like human beings, are subject to sickness and famine, and when these fall on the hive, the bees change colour, become emaciated, hang about the mouth of the hive, and, faint with cold and hunger, bring out their dead; an ominous hum is heard inside, and then it is full time for the owner to fumigate with the gum-resin, called galbanum, and introduce food in the shape of honey through reed pipes. It is not a bad plan to add a pinch of pounded galls. Dried rose-leaves, boiled wine, raisins, thyme, and strong-smelling centaury, are all good additions to the honey. Another capital plan for feeding the bees is to procure a basketful of *Aster Amellus* root, boil them in good fruity wine, and then place them in front of the hives.

Bees, as a rule, are produced by spontaneous generation, people will be pleased to hear, but not invariably, as an old Cilician, a thrifty acquaintance, has bees which appear to produce their kind in the usual manner.*

A shepherd, one Aristæus, had the honour of first illustrating the spontaneous theory. His stock of bees having perished by famine and disease, caused him to complain to his mother, who was a kind of water fairy or mermaid. She introduced him to a cunning man, a sort of magician, passing by the name of Old Proteus; but he had many disguises; and this person in a very prolix fashion, and then only under compulsion, pointed out to the shepherd—who, by-the-by, showed far greater energy during the interview than he showed in the management of his hives—how he could produce a new stock from the dead bodies of cattle.—L.

MY FIRST YEAR.

[1951.] As this is my first year of keeping bees, I am thankful to say I have received much help from your *Journal*. Some years ago I had a desire to keep a few bees, but never had a fair opportunity of buying any until last spring when I saw some advertised for sale, and I went and bought two bar-framed hives with stocks in them for 1*l.* 1*s.* per hive. One of them had twelve 1-lb. sections sealed up on it to start with. I got them at the latter end of April, and on July 23rd I got my first swarm, and put them into a bar-frame hive that I had made after the other's pattern, and with two inches of starters on frames. In less than two weeks they had nine frames filled with fine white comb. I got thirty 1-lb. filled sections, and six not quite finished, which we used for ourselves, and one swarm; so I think being a beginner and the season of 1888, they have done very well if I can only get them over winter in the north-east of Yorkshire. The three hives seem strong and healthy. I made syrup and gave them with feed bottles; and on the 24th I got twenty-four and a-half pounds of loaf sugar in a little water and boiled it till it was a little stiffer than putty when cold, and put it under the quilts and down between the combs over the middle of the brood nest. As my hives stand facing the south, and I thought they would need shading, I took the instructions given in your *Journal* in August on shading hives. I got four posts, and bought an old canvassed roof and put on them. The two front posts stood out of the ground about six feet, and when the sun arose it shone in under on to the front of the hives, and so I lowered the post a foot and a half, but still the sun shone on them; and so I got an old bag and nailed across from post to post half way down.—Yorkshire Learner.

COLOURS AND BEES.

[1952.] On page 700 Mrs. Mahala B. Chaddock takes objection to the statement that changes in colour of flowers, after they have been pollinated, and the secretion of nectar has ceased, is developed for the apparent purpose of indicating to insects that their services are no longer needed, thereby saving them much waste of time in probing such flowers.

In many flowers the fertility depends upon the insects which visit them. The more frequent the visits of insects the greater the fertility. So that colour as a guide is not only advantageous to insects which visit flowers, but the plant in return is capable of producing more and better seeds, thus giving it a better chance in the battle of life.

That odour is important in attracting insects is an established fact, which no one disputes. Most naturalists agree that colour is an important factor in attracting insects to flowers, and that they have done much to develop the colours in flowers.

In nearly all of the brightly coloured flowers pollina-

* See line 139.

tion is effected by insects, as in mints, larkspurs, columbines, honey-suckles, salvias, &c., but in the inconspicuous flowers of the hazel, walnut, oak, grasses and sedges, it is done by the wind.

I should wish to know why the sunflower should have developed the large, conspicuous ray-flower surrounding the head; the vermilion-red tracts surrounding the flowers of poinsettia; the bright-red corollas of bee-balm, or the rose-purple corolla of the dragon-head, and numerous other cases which might be mentioned? Have the colours and forms of flowers been developed merely to gratify and please our senses?

The simple statement that insects are attracted 'by *scent* and not *colour*' has little weight. Experimentally it has been shown by Sir John Lubbock, in *Ants, Bees, and Wasps*, ch. x., p. 274; and by Hermann Muller, in *Versuche ueber die Farbenliebhaberei der Honig-biene*, Kosmas, No. 10, vol. xii., p. 273, that bees possess an acute colour sense, readily distinguishing such colours as blue, green, orange, red, white, and yellow. It does not follow from this that insects reason because colours are discerned, any more than a bee uses reason to construct its cells.—Prof. D. H. Pammel, *St. Louis, Mo.* (*American Bee Journal*).

Echoes from the Hives.

Bishop Burton, Hull, Yorkshire, Dec. 29th, 1888.—I have kept bees for five years—commenced in the old style, which is the most favoured in this part: but three years ago I got *one* bar-framed hive, the year following *two* more, and at present have *six*. I find them a very great improvement on the straw skeps, both as to the amount of honey produced and the ease with which the bees can be manipulated. In 1887 I took 63 lbs. of honey from one hive containing a swarm of the previous year. This year, I am sorry to say, I have fared as badly as others whom I read of in the *Journal*; have only had two swarms, and taken two 1-lb. sections of honey from six hives. Early in the season I had to take off all section-crates, and, in place of having them filled with honey, I had to begin feeding from the first. I have so far been successful in keeping my bees alive, and on examining them the other day I found that they have a nice quantity of sealed store. I therefore look forward to a better season in the coming year.—Arthur Barnett.

NOTICES TO CORRESPONDENTS & INQUIRERS.

M. T.—*Moving Bees.*—In moving hives the distance stated the principal points are, the security of the frames against swinging, the ventilation of the hives, and care in transit. If the frames have distance-guides or broad shoulders, a rack fixed to the floor-board will make them secure. If plain frames be used, fasten the frames by putting sticks in at each end ½ in. thick by ⅝ wide. Two sticks to be put in the corners of the hives, then a frame against them, then two more sticks and another frame, and so on. The last two sticks should be slightly wedge-shaped, so as to be driven down hard, and the frames so tightly fixed that they cannot be moved with the roughest treatment. Let your conveyance go slowly, and select the smoothest road. The quilt should be replaced by a piece of perforated zinc tacked on the top, and another over the entrance. With such hives it is not necessary that they should be inverted.

W. H.—*Good's Candy.*—You will find this an excellent food during winter and early spring. It is made by mixing very finely powdered sugar with liquid honey till it is the consistency of stiff dough or paste. Or, take autumn syrup, and into this stir 'icing sugar' till the substance attains the thickness of Good's candy.

Alpha.—*Position of Apiary.*—You should succeed admirably. Get a good strong May swarm.

G. H. Gannen.—*Making Candy.*—The mixture of sugar and water should boil until it will set. This can be ascertained by putting a few drops on a cold plate. If it *just* sticks to the finger when cold then it is done.

J. H. West.—*Dead Queen.*—This queen is only one of very many queens that will be 'found dead.' It is noticed that the wings are gone. Was it so when you found it? There is nothing to indicate any reason for her decease.

J. James.—The proportion of salicylic acid to the amount of syrup made was too great. If you have any doubts as to the suitability of the syrup, sugar-cake can be placed under the quilt above the cluster of the bees.

Corrections.—Page 7, line 8, *for* conceding *read* concealing; line 10, *for* not *read* most.

Business Directory.

HIVES AND OTHER APPLIANCES.

Abbott Bros., Southall, and Merchants' Quay, Dublin
Appleton, H. M., 256A Hotwell Road, Bristol.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Burtt, E. J., Stroud Road, Gloucester.
Edey & Son, St. Neots.
Godman, A., St. Albans.
Howard, J. H., Holme, Peterborough.
Hutchings, A. F., St. Mary Cray, Kent.
Meadham, M., Huntington, Hereford.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.
Walton, E. C., 82 Emmanuel Street, Preston.
Webster, W. B., Binfield, Berks.
Woodley & Flood, 26 Donnington Road, Reading.
Wren & Son, 139 High Street, Lowestoft.

HONEY MERCHANTS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baldwin, S. J., Bromley, Kent.
Edey & Sons, St. Neots.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

FOREIGN BEES AND QUEENS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
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Blow, T. B., Welwyn, Herts.
Benton, F., Laibach, Carniola, Austria.
Edey & Sons, St. Neots.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

METAL ENDS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Edey & Sons, St. Neots.
Godman, A., St. Albans.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

COMB FOUNDATION.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Edey & Sons, St. Neots.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.

COMB FOUNDATION MILLS.

Godman, A., St. Albans.

HONEY GLASS MERCHANTS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Blow, T. B., Welwyn, Herts.
Pearson, F., Stockton Heath, Warrington.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

WINDSOR MEETING, 1889.

Commencing MONDAY, JUNE 24th, and closing SATURDAY, JUNE 29th.

PRIZE LIST FOR HIVES, HONEY, &c.

Exhibits in Classes 1, 3, 4, 5, 6, 7, 8, 9, 10, 11 (sections excepted), must be manufactured by the Exhibitor. Exhibits in Class 1 and in Class 19 to be staged and repacked by the Exhibitor.

CLASS 1.—For the best collection of Hives and Appliances, to consist of the following articles:—One Frame-hive, priced at 15*s.*; one ditto, priced at 10*s.* (*Note.*—These Hives must be fitted with arrangements for Storifying.) One Observatory Hive; one Hive of Straw or other material, not entirely of wood, for obtaining either Comb or Extracted Honey; one pair of Section Crates fitted with Sections; one Extractor, one slow stimulating Feeder, one rapid Feeder; one Smoker or other Instrument for quieting Bees; one Veil, one Swarm Box for travelling, capable of being used as a Nucleus Hive; one Travelling Crate for Comb Honey; five other distinct articles not specified at the discretion of the Exhibitor. Each article to be priced separately. No articles must be added to the collection, nor any portion of the Exhibit removed during the Show. First Prize, 40*s.*; second Prize, 30*s.*

CLASS 2.—For the best Observatory Hive stocked with Foreign Bees and Queen. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 3.—For the best and most complete Frame-hive for general use, unpainted. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 4.—For the best and most complete Frame-hive for general use. The Hive shall consist of (1) a Floor-board on four short legs; two Chambers or Body-boxes, equal in size, similar and interchangeable, both to have porches, with entrances not less than 12 in. wide, that can be contracted at pleasure, each chamber to be capable of holding at least ten Standard Frames, but only one set of Frames with strips of foundation fixed and two division-boards to be supplied. (2) One Case of 4¼ by 4¼ Sections, with foundation fixed and separators, of such size as to admit of its being placed inside the chamber. (3) A substantial Roof, sufficiently deep to cover a case of sections and afford ample protection to the whole Hive, the price of each part, namely, stand and floor-board, body-box, case of sections, and roof, to be given separately, the whole not to exceed 15*s.*, unpainted. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 5.—For the best and most complete Frame Hive for general uses. The Hive shall consist of (1) one Chamber or body-box, containing ten Standard Frames having strips of foundation fixed, two division boards, entrance porch, and floor-board, the chamber capable of being used with a second of the same pattern. (2) One Case of twenty-one Sections, 4¼ by 4¼, with foundation fixed and separators. (3) A Roof sufficiently deep to cover one case of sections at least, the price of each part, namely, floor-board, body-box, case of sections, and roof to be given separately, the whole not to exceed 10*s.* 6*d.*, unpainted. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 6.—For the best Honey Extractor, price to be taken into consideration. First Prize, 15*s.*; second Prize, 10*s.*

CLASS 7.—For the best Honey Extractor, price not to exceed 12*s.* 6*d.* First Prize, 15*s.*; second Prize, 10*s.*

CLASS 8.—For the best pair of Section Racks, completely fitted for use and interchangeable, price not to exceed 3*s.* 6*d.* each. First Prize, 15*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 9.—For the best Feeder for slow stimulating feeding. First Prize, 10*s.*; second Prize, 5*s.*

CLASS 10.—For the best Feeder for quick autumn feeding, capable of holding at least 5 lbs. of food at a time. First Prize, 10*s.*; second Prize, 5*s.*

CLASS 11.—For the best Smoker. First prize, 10*s.* second Prize, 5*s.*

CLASS 12.—For Useful Inventions introduced since 1887. Special Prizes according to merit.

CLASS 13.—For the best 12 Sections of Comb Honey, the gross weight to approximate 24 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 14.—For the best 12 Sections of Comb Honey, the gross weight to approximate 12 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 15.—For the best 6 Sections of Comb Honey, the gross weight to approximate 6 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 16.—For the best Exhibit of Run or Extracted Honey in jars, not exceeding 2 lbs. each, the gross weight to approximate 24 lbs. First Prize, 30*s.*; second Prize, 20*s.*; third Prize, 10*s.*; fourth Prize, 5*s.*

CLASS 17.—For the best Exhibit of Heather Honey (Comb or Extracted), the gross weight to approximate 12 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 18.—For the best Exhibit of Granulated Honey in jars, not exceeding 2 lbs. each, the gross weight to approximate 12 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 19.—For the best Exhibit of Comb and Extracted Honey, in any form, staged on space 4 ft. by 4 ft., height not to exceed 5 ft. above the table. The gross weight of each kind to be stated. First Prize, 60*s.*; second Prize, 40*s.*; third Prize, 20*s.*

The Exhibits in this class to be staged by the Exhibitor.

[A Silver Medal, independently of Money Prizes, will be given for the Exhibit most tastefully arranged.]

CLASS 20.—For the best plan and design for an Apiary of 50 Hives on two or more acres of land, to include a suitable building for extracting and general work. The design to show arrangements for growing Honey- and Pollen-producing plants, attention being given to the value of the crops for other purposes. First Prize, 40*s.* and Silver Medal; second Prize, 20*s.* and Bronze Medal.

CLASS 21.—For the best Diagrams suitable for a Lecture on Bee-keeping, or Technical Lessons in Rural Schools. First Prize, 40*s.* and Silver Medal; second Prize, 20*s.* and Bronze Medal.

CLASS 22.—For the most interesting and instructive Exhibit of any kind connected with Bee-culture not mentioned in the foregoing Classes. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

The Council reserve to themselves the right to publish for Educational purposes any Exhibit entered in Class 20 and 21.

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THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.

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Editorial, Notices, &c.

COUNTY ASSOCIATIONS AND THE CENTRAL.

Since the last Conversazione, when the Rev. J. Lingen Seager favoured the meeting with his views on the subject of County and District Associations, there has been in the pages of the *Journal* an animated discussion on the development of these Associations. Mr. Seager's paper referred more especially to the possibility and necessity of other Associations than County being allowed to be affiliated to the Central. The discussion which has followed the delivery of the address has been directed more specially to the proposal that the representatives of affiliated Associations should be *ex-officio* members of the Committee, and so have a greater interest in the management of the affairs of the Association. It need be no matter of surprise that there should in the course of years be a desire to develop the work of the Association. Finality should never be written on anything mundane.

If we look back on the history of the Association we shall see that it has already passed through several successive phases. In the year 1873, concurrently with the publication of the first number of the *British Bee Journal*, the idea of a 'guild' or confederation of Associations for the benefit of apiculture was mooted. This idea emanated from a correspondent signing himself 'H. W. T.' His communication sketched a system of prizes for honey and bee-gear of any description or any novelty connected therewith, the prizes to be awarded at the Shows of the leading Agricultural and Horticultural Societies of the kingdom, who, it was thought, would appoint judges to pronounce on the merits of the exhibits. The idea met with general approval from bee-keepers, and after a time, being carefully nurtured by the then Editor of the *B.B.J.*, it took root, and borefruit, for in May, 1874, a meeting was held in a schoolroom near the Camden Station, when the foundations of a National Association for the promotion of apiculture were wisely and securely laid. The Chairman of that meeting was the Hon. and Rev. Henry Bligh, whom we are pleased to recognise as being the present Vice-Chairman of the Association. Mr. R. R. Godfrey, of Grantham, Lincolnshire, was the first to apprehend the importance of the movement, and by his energy the Lincolnshire B.K.A. was started. His example was speedily followed by Mr. C. Tite, living then at Yeovil, and Mr. W. N. Griffin, Alphington, Exeter, and soon the Dorsetshire and the Devon and Exeter Associations were established. Several Associations were soon formed, and matters appeared to be proceeding prosperously; but we regret to say that the rising hopes of bee-keepers received at that time a severe check from causes which need not now be dwelt upon. These difficulties were, however, overcome by the exertions of the Rev. H. R. Peel, who, by purse and pen, by voice and act, by diligence and tact, with the support of some of the gentlemen on the present Committee, reconstructed these Associations, and set them on a new basis. Since that time the Associations have done, and are still doing, a good work.

For many subsequent years the laws and regulations for the guidance and management of these Societies have been found sufficient. But in the course of time all human things wax old, and repairs and reforms are found to be necessary. It therefore should be a matter of rejoicing that the County Associations have displayed such an interest in the future welfare of the Association as to express a desire that some endeavours should be made to strengthen the position of both the parent and the affiliated Associations. We should like to have been favoured with the views of a larger number of the Secretaries of the County Associations. An old County Secretary, Mr. W. N. Griffin, has grappled with the subject in an able manner; we are also indebted to the Hon. and Rev. H. Bligh, who has expressed himself in so manly and straightforward a manner on the subject.

Of the suggested alterations submitted to the Central Committee for consideration by the special Committee appointed at the last quarterly meeting, we believe there are two matters which are considered of considerable importance. (1.) That Associations other than Counties shall be allowed to be affiliated to the Central Association. (2.) That the representatives of such Associations, being members of the Central Association, shall be *ex officio* members of the Committee.

The former proposal no doubt emanated from the fact that representations having been made

to the Central Committee they had recently resolved to take this matter into consideration themselves. We are therefore bound to conclude that, from their experience, good grounds existed for the consideration of the subject, and that such an alteration of the rules of the Association would be promotive of the best interests of bee-keeping. It is gratifying to find thatthe special Committee endorse the action of the Central body on this point.

The second proposal is a matter which requires considerable care and forethought before arriving at any decision. It is well to ask at the outset in what relation do the affiliated Associations under the present *régime* stand towards the Central. We think it must be admitted to be very much the same as that of the ordinary member paying an annual subscription for certain privileges or benefits, and, as such, are scarcely entitled to a separate representation on the committee with power to vote in the expenditure of the Central Association's funds. If the affiliated Associations were taxed in proportion to the number of their members, paying large sums to the funds of the Central Association, such a claim would be undeniable. As Mr. Griffin truly remarks, 'County members get very nearly the same advantages as the British members.' We fully agree with Mr. Seager that 'Local Associations, having paid their affiliation fees, should be entitled to vote in the election of the Committee,' and we would add the privilege of nominating members for election on the committee.

In respect to the representation of the affiliated Associations in the Central Committee, we consider, granting that such an arrangement is desirable in the interest of the Central and the affiliated Associations, the proposal to make representatives *ex officio* members of that body can scarcely be satisfactory to all concerned.

An *ex officio* and irresponsible body, with large powers, is against the spirit of the age. We can imagine the result of a proposal by Mr. Ritchie to make all the magistrates *ex officio* members of the new County Councils.

One or more persons elected by the affiliated Associations, able and willing to serve on the Committee of the Central Society, and who would attend the meetings frequently, would be of far greater service to the cause than the body proposed. The Central Executive would receive more reliable assistance in its deliberations, and the whole of the affiliated Societies would be more directly represented. An arrangement on the lines proposed by Mr. Bligh would, we consider, meet the views of the majority of the members of the Association, and would tend to strengthen the foundations of the Society.

USEFUL HINTS.

The weather has of late been sufficiently cold to gratify the wishes of our younger readers who indulge in the healthy exercise of skating, but the four or five days of hard frost have passed away with rain, sleet, and what is called a 'cold thaw,' so far at least as the midland and southern parts of the country are concerned, such is the report. But not so in the north. A correspondent, who dates from 'Loweswater Hall, Cumberland, January 7th,' writes: 'My place here is only six miles from the Solway as the crow flies, and hitherto we have only had slight frosts, and on Friday night none whatever, the weather being very mild indeed. As an indication of the extreme mildness of the weather in this neighbourhood, I send you per Parcel Post a number of flowers of various kinds which bloomed in the open in my grounds here, and of which I append a list, viz., pampas grass, wild strawberry fruit, large red perennial poppy, gentian, auricula, polyanthuses, primrose, rose campion, laurustinus, yellow jessamine, dandelion, roses, ivy-bloom, Christmas rose, wallflowers, daisy, marigold, gooseberry-bloom, ferns, small pink nettle, double wormwood, rose of Sharon, watercress, barberry, hollyhock, hepatica,' the receipt of which elicited the remark, 'The flowers came duly to hand, and have a fresh and summery look which makes it difficult to believe that we are in the middle of January.' So the north again triumphs over the south, and while our southern bees have been confined to their hives for many weeks, having no opportunity of taking a cleansing flight, we suppose the northern bees have been 'flitting from flower to flower, and kissing all buds that are pretty and sweet.'

Shows.—In the matter of shows, however, we southerners shall have the best of it during the present year. The Jubilee Show of the Royal Agricultural Society will open in Windsor Great Park on Saturday, the 22nd of June, and will remain open until the following Saturday, two days longer than usual. (Will not some of our enterprising hive-makers enter, in the 'Hive and Honey Department,' a specimen or two of *storyfying hives* on Dr. Tinker's plan, described below, for which Class 3 offers a good opportunity?) Among the exhibitors will be the Queen and the Prince of Wales, who takes a great interest in the show, and will, we hope, again bestow his patronage on the bees. Then we shall have the Bath and West of England Show at Exeter, whilst the Royal Counties' Agricultural Society's Meeting will be held at Horsham in July, and ought to have a 'bee department,' when we *might* have a grand display of honey, for which the Windsor show unfortunately takes place too early, unless we are favoured with an unusually early season.

Hives and Colonies should be inspected as early as the weather will permit and with little disturbance. Numbers of colonies around us have already perished, not from starvation only, but from the population being too small to keep up the necessary heat. Many colonies which were large and strong in June had dwindled to half their numbers when the autumn arrived, and so went into winter quarters short of bees. Condemned bees, from the cottagers' skeps, were mere *handfuls* as compared with those of average years, and we had to unite some six or eight lots in order to make one good colony. Not a single lot we drove would have passed through the winter. There is, unfortunately, every prospect of a terrible dearth of bees when the spring months arrive. The months of July and August were more like winter than summer, and breeding ceased in many hives.

Entrances must be carefully and frequently examined, and kept clear of dead bees and other refuse, but it will be well to raise the quilts and ascertain whether *all* are dead before feeding, or taking other precautions.

Candy should still be used as food. The cream candy of Mr. Saddler, advertised in our columns, appears of excellent quality, judging from a sample lately received from him, and well adapted to the present needs of the bees. No syrup must be given for the next six weeks.

Quilts, if pervious, may be changed—dry ones taking the place of those saturated with moisture—with advantage to the bees.

Floor-boards also may be removed, and warm dry

ones supplied. But these operations should be performed on fine days only. The winter, let us hope, will soon pass away, and those who are fortunate enough to find their bees alive will again be busily engaged in preparing for the summer campaign. Let there be no feeding *by driblets*, but give enough candy to last for a fortnight or three weeks, and cover up with plenty of warm wrapping. Good wholesome food, and ample protection from cold, are the two chief points in early spring management.

Brood-chambers.—Dr. Tinker has a long article in the *American Apiculturist* of December last, entitled 'A New Management of Bees, Brood-chambers, Brood-frames,' &c., in which the chief points advocated are—(1.) Keeping the brood-chamber for brood solely; (2.) The use of honey-boards; (3.) The indulgence of the natural-swarming instinct, without allowing increase; and (4.) The production of comb-honey, or extracted, in larger quantities than by any other method. In working this system we are told that a storifying hive, used with a queen-excluding honey-board, has great advantages over all others—that the invention of the wood and zinc queen-excluding honey-board marks an era in the progress of apiculture, and goes a long way towards solving the problem of 'How to obtain the largest product from our bees.'

Let us take the ideas on the above-named points, and compare them with our English notions. (1.) *The brood-chamber.*—Now, the small brood-chamber and the storifying system are *pre-eminently* English, and have been in use here for generations. Witness the small straw skep, with its 'super' mounted above, and the first frame-hive which came into general use in this country, viz., the Woodbury. Also, above all, we have the Stewarton, which is, *sui generis*, a storifying hive, in which the brood is confined to two small chambers, together affording about the capacity Dr. Tinker advises. We are told that there must be no room in the brood-chamber for honey that should go into the supers—that such brood-chamber (English, 'body-box') should contain about 800 square inches of comb—that the one used by Dr. Tinker, containing 830 square inches, is formed of a very plain and cheaply-made brood-case, which holds eight hanging Langstroth frames, 7 inches deep by 17 inches long, outside dimensions, upon which is placed a section case containing twenty-four sections $4\frac{1}{4} \times 4\frac{1}{4} \times 7\frac{7}{8}$ inches.

When speaking of 'square inches of comb,' cubic inches are evidently intended, since it is added that '50 workers can be reared every 21 days in each *square inch* of comb.' As each square inch of surface contains 25 worker-cells, both surfaces of the comb must be counted in order to produce 50 cells to a square inch, or rather to two square inches of surface. The actual comb surface contained in eight Tinker-Langstroth frames is 1720 square inches, or 860 cubic inches, if we suppose the combs to be one inch thick. It so happens that eight British standard frames contain 864 cubic inches of comb, supplying a brood-nest very little in excess of that used by Dr. Tinker. But few English apiarists consider ten standard frames too many for the brood-chamber, when the storifying system is followed, and, with supers piled on, it is difficult to prevent swarming, the whole ten frames, when the queen is young and prolific, being filled with brood, so far as it is in the nature of the bees to fill them. However contracted the brood-chamber may be, we have rarely seen its combs more than two-thirds or three-fourths full of brood; the remaining one-third or one-fourth of each frame—above and around the brood—are invariably assigned to stores of unsealed honey and pollen, during the breeding season, and this arrangement we have never been able to prevent. The doctor's contention, therefore, that 40,000 workers can be raised every twenty-one days from his brood-chamber of 830 cubic inches of comb, is likely to prove a fallacy, even if we allow (for the sake of argument) the possibility of preventing a large and prosperous colony, treated on the swarming system, from building drone-cells.

With the chief points of his scheme we are fully in accord, but when he gets it into full working, further experience will, we think, prove the necessity of allowing a brood-chamber of the capacity of from 1000 to 1100 cubic inches of comb, or, in other words, to ten British Standard, or ten Tinker-Langstroth frames, each of which contains about 1080 cubic inches of comb. The comb capacity of the old ten-frame Woodbury hive was 940 cubic inches, which was found too small for a storifying hive.

(2.) *Queen-excluding honey-boards.*—We are told that the invention of the honey-board marks an era in the progress of apiculture, creates possibilities heretofore unknown, and goes far towards solving the problem of 'How to obtain the largest product from our bees.' Not only the largest quantity, but also 'the finest quality of comb or extracted honey,' might have been added. The honey-board recommended consists of wood and zinc, each zinc slide, or strip, to have two rows of perforations, which are said to afford sufficient ventilation to supers—so necessary to the rapid ripening of the honey, and free passage to the working bees, which are neither obstructed in their work, nor is the production of honey limited thereby in the slightest degree. The use of such a honey-board limits the brood space to the actual requirements of the brood, and if ample room is given in the supers there is no trouble with excessive swarming or carrying of pollen into the supers.

(3.) *The indulgence of the swarming instinct without producing increase of colonies.*—The improved system of management begins with swarming, all colonies having been built up to full strength before that time arrives. It is a well-known fact that colonies which divide their working forces by swarming do not collect so much surplus as those which do not swarm, therefore a system of management which prevents division, without checking the working *vim*, must give the largest returns. All colonies are brought up to full strength by the commencement of the honey-flow, and receive supers. If a swarm issues from any colony, it is hived on the old stand, and the supers are transferred from the old to the new hive, the new brood-chamber receiving empty reserved combs, or frames filled, or partly filled, with foundation, or both combined. The bees remaining on the combs in the old brood-chamber are shaken off and allowed to run into the new hive together with the swarm, and these combs, full of hatching and immature brood, are placed in an empty hive upon an excluding honey-board, and set upon the brood-chamber of another colony which has not swarmed, but which is sufficiently strong to be able to take charge of this additional brood, and at the same time the supers, together with the honey-board of this latter colony, are placed over the newly added brood. The queen-cells in the transferred brood may either be cut out or allowed to remain. Placing the brood with its queen-cells upon another colony does not cause it to swarm, because the old queen below is not aware of the existence of the queen-cells above. By this plan surplus brood-combs accumulate after a time, and on them future swarms may be hived. A supply of virgin queens may also be provided with the minimum of trouble and expense if the queen-cells are allowed to remain in the comb transferred after swarming. But on the management of queen-cells, virgin queens, and drones, Dr. Tinker promises another article. He further states, 'For years I have sought a remedy for the many braced combs which bees often build between the brood-frames and honey-board and supers. It is at last found in this new system of management. In all cases of large swarms, and where brood is placed over other colonies, there are no brace

combs built anywhere, so that all parts of the hive are easily separable.' The Doctor also states 'a remarkable fact, never before made public,' when he says, 'My improved honey-board has never yet been passed by a queen, either laying or virgin, so that virgin queens that may hatch in brood-combs above laying queens cannot pass down to destroy the laying queen, as they are sure to do if they have a chance, for no queen-cells in combs placed above the honey-board are ever destroyed by the bees of other colonies to which they may be given. Thus all depends on the perfect working of the honey-board.'

(4). *Comb and extracted honey can be produced in larger quantities by this than by any other system.*—This goes without saying if all that is predicated of the system be trustworthy. Since all the bees of every colony are kept together, and yet the swarming instinct is indulged, while the laying powers of the queen are stimulated to the utmost, it follows that the working energies of the bees will be as great as possible. Hence we may fairly expect the largest possible storage of honey. Judging from our own practice and experience, we are favourably disposed towards Dr. Tinker's method. Indeed the plan, minus the honey-board, is the one we have always found most productive of the finest quality of honey whether in the form of comb or extracted. For the production of the latter we decidedly recommend the shallow-framed supers over the brood-chambers, and the invariable use of the improved queen-excluding honey-boards. We hope that some of our readers will give the plan a trial in the forthcoming season, as we ourselves intend to do.

In Memoriam.

WILLIAM RAITT, OF BLAIRGOWRIE.

We very much regret that we have this week the melancholy duty to record the sudden death of Mr. William Raitt, of Beeeroft, Blairgowrie. This sad event occurred on Tuesday, January 8th.

On the previous evening he attended what was considered a very successful evangelistic meeting in the Mission Hall, Blairgowrie. On going home from it, he seemed to be in his usual health and specially happy. About six o'clock next morning, one of his boys, who slept with him, heard him breathing heavily, and called some of the other members of the household, who, on going into the room with a light, saw he was apparently dying, and he expired in a few minutes. The doctor had been sent for, and shortly arrived. He expressed the opinion that the cause of death had been stoppage of the action of the heart. About three years ago Mr. Raitt had been found almost dead in bed from a similar cause.

Mr. Raitt was a man of superior education and intelligence. Before settling at Beeeroft, where he took a feu of some acres and built a dwelling-house and offices eleven years ago, he was schoolmaster at Liff. In his speech as a candidate for Blairgowrie School Board, to which he was elected in 1879, he said 'he had taught for twenty-six years in elementary schools, and had some experience in the higher education, as he happened to be an undergraduate, with honours, of London University.' Mr. Raitt was forty-nine years of age, a widower, and leaves a family of seven children, mostly grown up.

We may truly say that the effect of this loss will be felt not only amongst his own kindred and people, but also amongst the bee-keepers of the United Kingdom. By his presence at various shows both in England and Scotland, by the contributions from his pen to different bee-periodicals, and by his allowed excellence and long experience as a bee-keeper, the name of Mr. Raitt is very widely known and respected. And yet, from a communication from his own pen, to which we shall presently advert, it is not as a bee-keeper that he would desire to be permanently remembered by his fellow-men. His aim and ambition have for many years been that his name should be known as one who was willing to spend and be spent in the service of his Lord and Master; and the letter to which we refer will show the earnestness and devotion he displayed in the vocation of an Evangelist.

Mr. Raitt, as we have stated, having spent many years of his life as a schoolmaster, commenced bee-keeping in the neighbourhood of Dundee when he was about thirty-three years of age. When we note the high position to which he afterwards attained among bee-keepers we think it desirable to record, for the encouragement of young bee-keepers, that the first communication we meet with from his pen in the *B.B. Journal* (Vol. iii., p. 231) was respecting some appearance in his hives which indicated foul brood, and asking the Editor to give a few plain directions for detecting foul brood in its incipient stage, and inquiring what remedy should be employed to cure it.

In the month of May, 1877, Mr. Raitt had become dissatisfied with the imperfect means then in vogue for obtaining wax-sheets, and to him we would assign the honour of being the first to procure from America a foundation machine. He says, 'I have just sent off to America for a comb-foundation machine, probably the first on this side the Atlantic; and as I am fully convinced of the right stuff, I hope to be able to report it a success before the season is over.' This machine having been received and tested, he reports it as 'a marvellous production,' and as a great success. This was the commencement of a new industry with Mr. Raitt. His foundation was in great favour, and his business has from year to year increased so that he was able to report in the last number of the *Record* that he had *four tons* of wax in hand for the supply of bee-keepers during the coming season. Mr. Raitt was an excellent judge of the qualities of wax.

In 1876, the East of Scotland Bee-keepers' Society was founded, with Mr. Raitt as secretary. He threw his accustomed energy into the work of this society, reading papers at its various meetings, conducting shows, and continually giving lectures on bee-keeping in the neighbourhood of Dundee. We note that at the show of September, 1876, Mr. Raitt took the first prize for the largest and best harvest of super honey the produce of one hive, the exhibit weighing 103½ lbs., and being 'pure in colour, regular in build, and as dry and well sealed as could be. This exhibit was sold for upwards of 8*l*.'

Many of Mr. Raitt's communications will be found in the earlier volumes of the *B. B. Journal*. In 1882 he published in the *Weekly News*, of Dundee, a series of papers embracing the whole field of bee-keeping, and which we have ever considered worthy of a more permanent record than is to be found in the fugacious columns of a weekly newspaper.

In January, 1885, Mr. Jackson transferred the editorship of the *Bee-keepers' Record* to Mr. W. Broughton Carr, of Higher Bebington, Cheshire, and to Mr. Wm. Raitt, 'who has long been recognised as one of the leading apiarists of the day, and his writings on bees are highly valued both here and in America;' and by these two gentlemen the *Record* has been conducted in the most exemplary manner to the present day.

Mr. Raitt, besides his work as a bee-keeper, has devoted much time and attention to the cultivation of strawberries, and his letters on the culture of that fruit which appeared in the *Journal of Horticulture* showed how fully his mind was imbued with the knowledge of

their culture. In this pursuit Mr. Raitt was specially skilful and successful.

Mr. Raitt was for some time editor of the Bee Department of the *Journal of Horticulture*.

At the Canadian Exhibition, in September 1885, Mr. Raitt, as many of our readers may remember, was present at the banquet given in honour of the Canadian visitors, and took a part in the discussion that was held at the evening Conversazione. He afterwards paid visits to the principal bee-keepers in England, who were all much gratified by having this opportunity of forming an acquaintance with one who had taken such a foremost part in the cultivation of the honey-bee.

We were always on the most friendly terms with Mr. Raitt, and only so lately as last September we spent two days with him at Lancaster judging. As a judge he was fair and free from bias, and his decisions to be depended on. He was also in London, and helped to judge the Irish honey at Olympia.

We adverted at the beginning of our notice to a communication which we had received from Mr. Raitt; and, as we have been endeavouring to delineate some of the leading features of his life as a bee-keeper, we offer no apologies for making some extracts exhibiting another phase in his manifold character which more especially present him before the world in that aspect in which he would himself have preferred to be known. This letter bears the date of February 29, 1884; in it he says:—

'I confess to a considerable decline in the measure of my enthusiasm as a bee-keeper, owing to a long succession of unprofitable seasons, and am now restricting my venture to some thirty stocks or so, though probably I have put myself to more trouble and expense in Scotland than any man living to propagate the modern style of bee-keeping. I do not care to be known but as little as possible as a bee-keeper. Fact is, I have another hobby, and my ambition is to be known under *it*. I can, I suppose, to yourself, as being a clergyman [the Rev. H. R. Peel was at that time editor of the *Journal*] explain myself without the danger of being considered *mad*. I may frankly say, then, that ever since I was about seventeen years of age I have been, heart and soul, devoted to the cause of Evangelism. I have never ceased to carry on evangelistic work since I was then awakened to its importance. In all parts of the north of Scotland I have taught and preached, and even now I am at the head of a local band of earnest souls who carry on some sixteen or seventeen services weekly in and around this town. I take a run occasionally to distant places, and am generally cheered by seeing great results. So much is this my hobby that I am never comfortable at home of an evening: I must be at work somewhere. Thus I manage to conduct from five to eight or nine services weekly. And never to my knowledge, though a poor man, have I pocketed a shilling for this work.

'Though a Presbyterian (Free Church) in name, I take no part whatever in sectarian work; and in the Association I refer to we have representatives of some seven or eight sects working harmoniously together. Our chief work is among the factory people, and by means of what we call "floating" meetings, that is, in cottages, shifting every week. I, however, conduct three general hall meetings every week, one of them being a large Bible class of from forty to sixty young men and women.

'Were my life written faithfully it would be taken up with such work, and the tremendous struggles I have had to stir up and keep up an interest in it wherever my lot has been cast, the persecutions I have endured, turned out of house and situation twice for the dear Lord's sake, &c. *Bees* would scarcely get a notice in it.

'A record of such a life would be out of place in your *Journal*. I might, I daresay, find more congenial ground in Root's *Gleanings*, in fact I feel as if "Root" and "Raitt" were twin brothers.

'As a *dealer*, I *deal* to *live*, and beyond a bare living for my large motherless family, and a little to give to the needy, I care not to push my trade. You may observe in the upper corner of my price-list *my* trade-mark!—well, that's Raitt!'

BEE-KEEPERS' VOCABULARY;

Or, Glossary of Technical and Scientific Words used in Works upon Bee-keeping.

Breed. *sb.* —A line of descendants from a particular parentage, and distinguished by particular hereditary qualities; applied by stock-raisers to races artificially produced and established; race, stock, family; strain.

Breed. *v.* (*Sax. bredan.*)—To produce brood; to raise young; to be hatched from eggs; brood-raising; brood-rearing.

Breed out.—To exhaust the breed; degenerate; to eliminate undesirable qualities by breeding.

Breeding in-and-in. To breed always with near relatives; close breeding.

Breeding-box or chamber.—Stock-box devoted to brood-rearing; brood-hive; brood-chamber; body box.

Bridal tour or trip. —The flight of a virgin queen for the purpose of mating with a drone; wedding excursion or flight; marriage flight.

Brimstone. *n.* (*Sax. bryne*, a burning, and *stone.*)—A hard, brittle, inflammable substance, of a lemon yellow colour; sulphur; sometimes incorrectly used as a verb to signify the destruction of bees by means of burning sulphur; or the exposure to the fumes produced by burning sulphur.

Broad frames. *n. pl.* (fr. *Sax. fremman*, to form.)—Wide frames for holding sections when hung in the hive or super; frames having bars which touch each other while the centres are the proper distance apart for brood-rearing; close frames.

Broad-shoulders. (*Sax. sculder.*)—The wide projecting ends of the top bars of frames intended to keep the frames at the proper distance apart.

Brood. *n.* (*M. E. brode.*)—Progeny, offspring, young; young bees in the cells in all stages between the egg and the bee that has just left its cell; immature bees still in the cells.

Brood-cells. *n. pl.* (*L. cella*, prob. fr. *celo*, I hide.)—The cells in combs used for brood.

Brood-chamber. *n.* (*Fr. chambre.*)—That compartment of the hive reserved for brood-raising; a box which contains brood. See *Breeding-box.*

Brood-cluster. *n.* (*Sax. cluster*, a congregating together.)—The cluster of bees which cover the brood-nest.

Brood-comb. *n.* (*Sax. comb*, a valley.)—Assemblage of cells in a comb containing brood; worker and drone comb used for breeding.

Brood-drones. *n. pl.* (*Sax. dran, dran*, humming.)—Drones in various stages of brood; or drone brood.

Brood-food. *n.* (*Sax. foda*, fr. *fedan*, to feed.)—The food prepared by the nurse-bees and given to the larvæ. See *Bee-pap.*

Brood-foundation. *n.* (*L. fundatio*, fr. *fundare*, to found.)—Comb-foundation used in the frames devoted to brood-raising.

Brood-frames. *n. pl.* (fr. *Sax. fremman*, to form.)—Applied to the frames used in the brood-chamber.

Brood-hive. *n.*—See *Breeding-boxes.*

Brood-nest. *n.*—The space in a hive occupied by the queen in laying, and which contains eggs and brood.

Brood-raising or rearing.—The raising of brood.

WITH THE AMERICAN BEE-KEEPERS.

By Thomas B. Blow, F.L.S., Welwyn, Herts.

Prof. Nelson W. McLain.

(*Continued from p.* 18.)

I had had an introduction to Prof. McLain, and had arranged to meet him at his home, which is in the suburbs of Chicago, about nine miles from the city. Leaving Dr. Miller, I went on at once to Prof. McLain, and we went together to the United States Apicultural Station at Aurora. I may mention that the Professor is United States Apicultural agent, and that he has been very busy for some time past in interviewing the prominent dealers and bee-keepers to induce them to contribute their various specialities towards making a grand show at the Paris Exhibition. In England the special work on which he is engaged and has been for the past two years does not appear to be much known or appreciated. His opinion (very plainly expressed) on the improvement of the bee itself during the past twenty years is that little or nothing has been done, and that while the progress of the various appliances for honey-producing has been simply marvellous, yet the bee, the honey-producer, has not made much progress. Whilst admitting that some good has resulted from the various foreign races that during the past few years have been so much imported, yet the Professor contends that the major part of these importations come from habitats having climatic conditions so different from those of the States that these races are at once at a great disadvantage. It is not the constant importation of new blood that will lead to any permanent good results, but the careful breeding year after year, and the selection of such stock that shows the best characteristics.

Starting with these premises, the very first thing to work at is the successful control of fertilisation, for without control of that it is impossible to certainly get any definite results. Endless experiments have here been made to secure the desired end. The first plan was to build quite an immense structure of wood framework covered with wire-gauze cloth. The hives were arranged so that the worker-bees only could get flight into the open air, the drones and queen being hindered by queen-excluding zinc placed over the outside entrance. The drones and queen could fly into the gauze-covered house, and there the queen could get fertilised. If the workers flew into the gauze house, then they had access to the open air by means of large sheets of queen-excluding zinc placed in various parts. The most successful result in this experiment was the fertilisation of 50 per cent of the queens. Various climatic conditions conspired to hinder the work, but Prof. McLain is so much gratified with the partial success of this simple plan that he intends to still further pursue it another season. He is strongly of opinion that only a very small percentage of the drones are in an efficient state to perform the act of fertilisation, and he thinks that his many experiments justify him in making this statement. It is undoubtedly a matter worthy of investigation, for many of us have wondered why on some occasions that our queens did not get mated, when we were quite aware that the queens were flying daily, and that plenty of drones were on the wing too. He divides the drones into three classes: 1st. Those that are impotent, and whose sex-organs when dissected are quite or nearly empty. 2nd. Those drones in which the mucus surrounding the spermatozoa is thick and curdy. These two classes constitute a large proportion, and are useless. The third and only useful sort are those in which the sex-organs are quite filled with spermatozoa, and an abundant supply of albuminous fluid. He is quite inclined to the belief that the worker-bees have the power to determine the degree of the development of the sexual powers of the drone by supplying them with the food elements necessary.

Two other plans were tried. The first was to secure the queen on to what he calls a queen-clamp, which is a block of wood 2 inches wide by 4 inches long, in the end of which an opening is made the shape of a queen-cell, with the small end up. The block is then sawn down the middle, so that half of the queen-cell-shaped depression is in each part of the block. The queen is placed in this opening, so that her head is downwards, and the other half block is placed over her and the blocks secured together with a rubber band; then only the point of the abdomen of the queen projects through the small opening at end of the block. A number of selected drones are killed, and the spermatozoa taken up in an hypodermic injection syringe; the smooth, fine point of the syringe is then put on and the fluid injected into the vulva of the queen. Twenty-seven queens were thus treated two weeks in May and June, and six proved to be successfully fertilised. The second plan was to secure the queen in the queen-clamp and to obtain the seminal fluid from the right drones, and place drops of it upon and in the vulva of the queen, and by this plan many were successfully fertilised. Mr. Baldwin of Clarksville, Mo., told Prof. McLain that he had carried out this latter plan with astonishing success, and that he had succeeded in fertilising over 200 queens with but few failures. Mr. Baldwin, however, had not taken the same precautions that Prof. McLain had taken, and there was just the chance that some had flown and been fertilised in the usual way. In every case Prof. McLain had clipped the queen's wings immediately she left the queen-cell, so that there could be no doubt in the matter.

The diseases of bees, too, have taken up a deal of his time and attention. His conclusions with regard to foul brood are as follows:—That the disease is actively contagious; that it is persistent and reproduces itself whenever the germs find the proper conditions for development; that the germs may be carried on the clothing of the apiarian and upon the bodies of the bees from one apiary to another; that the germs may be borne upon the wind from one hive to another; that live pollen is the medium through which the contagion is most commonly and rapidly spread. The disease, he contends, is most easily cured, which ought to be good news to some of our English bee-keepers, who have been plagued with it for a long time, and his remedy is as follows:—Take 3 pints soft water and add 1 pint of dairy salt; put these in an earthen vessel and raise to 90° Fahr. Stir till dissolved. Then dissolve 4 tablespoonfuls of bicarbonate soda in 1 pint of boiling water, and add to the above. Stir in enough honey to make it quite sweet, but not to thicken it. Then take ½ oz. pure crystallized salicylic acid, and dissolve it in 1 oz. alcohol and add to the above while still warm. Shake the bees from the combs and extract closely all the honey. Spray the mixture thoroughly all over the combs and return them to the bees. The honey may then be fed back after having had 2½ ozs. of the remedy added to each quart. If syrup is used, then 1 oz. of the remedy is added to each quart. Not to be given in such quantities as will allow the bees to store it. Thoroughly and copiously spray the combs with the remedy every three days. Then, to keep the bees from bringing in fresh pollen, burn old dry bones to an ash, pulverise in a mortar, and sift finely and make a mixture of three parts rye-flour, one part bone-flour, adding enough syrup to make a thick paste. Press this into the cells with a stiff brush or thin knife; also keep sweetened brine at all times accessible to the bees, and continue the treatment till a cure is effected.

To show that it is efficient Prof. McLain gave the following case. On June 1st the owner of 200 colonies reported that he had two cases of foul brood very evident and twenty-five others suspicious. Actual examination proved that sixty-three colonies were diseased, and there were cases in every stage. Every colony was treated, and three applications of the remedy were made. The

first time the honey was extracted. In two weeks the whole apiary was free from the disease; cost of remedy, 6*d*. Several other cases were related to me, all having the same result. Prof. McLain gives the following reason for his notion that the contagion of foul brood is carried in the pollen of plants,—that the larvæ rarely exhibit any symptoms of disease till the time the process of weaning begins, at which time the character of the food is changed from the glandular secretion to the partially digested and undigested food. Live pollen is then added to the larval food, and with it the bacteria in greater or less numbers, growth is arrested, and death ensues. The remedy appears to destroy the bacteria, to cure the bees of the contagion, and restore them to their natural vigour.

The Professor has made very many experiments in winteriug, and his two strong points are that the bees should have their stores sealed quite early; that is, some time before they are ready for hybernation. He thinks that when the autumn feeding is about to be commenced, or when the bees are about to gather the fall honey, the combs should be placed a little further apart, so that the bees can elongate the cells, and so place a large share of the store in the upper part of the frame above the cluster. The second point is that all the bees should be in full vigour—not too old nor too young. They should be hatched after the main honey season is past, and before the time arrives for the bees to cease flying freely. If they are wintered in a cellar they should be placed on racks rather than be piled upon each other, and the bottom tier should be about 18 inches off the ground. Then he approves of using woollen quilts, as tending to give better escape of any moisture, and preventing the radiation of the heat. His observations as to cellar temperature have caused him to decide that 44° Fahr. is about the best, it depending, to a certain extent, upon the dryness or dampness of the cellar. Many stocks have been kept so that the shape of the cluster could always be seen, and also the degree of rest or unrest of the bees composing the cluster. He finds that if kept at 41° to 44° F. at intervals of about one week the bees arouse to activity, the cluster changes form, and after an hour or two of slight humming, the bees having appeased their hunger, the cluster again becomes compact, humming ceases, and respiration becomes slow, and the comatose state again prevails. The more even the temperature the longer period will they keep in this the most desirable condition. He condemns the practice of some bee-keepers of raising the temperature towards the end of the wintering period in order to induce the bees to raise brood. He prefers that the temperature at 41° to 44° F. be maintained till it is safe to put the stocks out on their summer stands.

Spring dwindling is as great a trouble here as it is in England. Prof. McLain contends that the remedy is to supply the bees with the food needful for the purpose of brood-rearing, and thus prevent the bees from roaming abroad in search of such food at an inclement season of the year. He takes 10 lbs. sugar, half a pint of salt, two tablespoonfuls of bicarbonate of soda, two tablespoonfuls of rye-flour, two tablespoonfuls of finely-powdered bone-ash, and one tablespoonful of cream of tartar. Add to these two quarts of hot water, and boil for two or three minutes only. This food is given to the bees, and is used to rear the brood, and the old bees are kept at home and their lives preserved, and consequently spring dwindling is prevented. Small colonies are also built up with marvellous rapidity by using this food, and I think it should be of good service to the British bee-keeper. No more should be given than the quantity actually needed by the bees for present consumption, as it is not desirable for them to store it. He has given it, too, to colonies after the honey harvest, when they have gone down considerably in numbers, or require to be much strengthened in number so as to winter well.

In England we do not hear much about the destruction of fruit by bees, but in the States, more especially in the grape-growing districts, many complaints have been heard, and have caused a number of actions at law. Prof. McLain has given valuable evidence in favour of the bee, and has thus enabled the bee-keepers to still ply their avocation undisturbed. The most exhaustive trials have been made to endeavour to compel the bees to attack and damage sound ripe grapes, but in every case without success. The experiments were tried in a large, gauze-wire-covered house, and the conditions of a severe drought were imitated. The bees were brought to points of hunger, thirst, and starvation, and these experiments extended over forty days. Thirteen different varieties of grapes were obtained, representing from the toughest to the most tender-skinned berries. They were hung around in the building; some bunches were dipped in syrup, some were suspended in the hives themselves; but in no case did they attempt to gnaw the skins of the grapes. If a grape was cracked or punctured, then they would suck the juice; if over-ripe and burst they would do the same, but appeared utterly unable to do any damage to sound fruit, nor did they attempt to further damage the cracked fruit. Even when the epidermis was removed they were still unable to penetrate the film surrounding the berry. In many instances he was summoned by fruit-growers to witness the bees tearing open the skins of the grapes, but in each case he succeeded in convincing them that the bees were simply sucking those grapes that had become cracked or damaged through the weather or over-ripeness, the most common source of such injury being the previous attacks of birds or wasps.

The cultivation of plants suited for honey supply has also had the Professor's attention. This matter is not of much interest to us, land being too valuable to be devoted entirely to such purposes.

The time was all too short to hear such a mass of information that Prof. McLain was desirous of imparting to me. I have just given the heads of the subjects on which we talked. A wonderful hive, the construction of which is at present a secret, was shown to me, but I have not permission to publish the details. Suffice it to say that he has by its use obtained a far higher average of honey than by any other, and that desired end we are all trying to obtain. Some time later I may give details concerning it. The Professor very kindly went back to Chicago with me, and showed me some of the chief points of interest in the city; among other places we visited some of the firms who deal in honey in Lake Io, which is the Covent Garden of Chicago.

THIRTY YEARS AMONG THE BEES.

By Henry Alley.

Queen-Rearing.

(*Continued from page* 16.)

Eggs—Time required to Hatch Them.—It requires three and a half days from the time the egg is placed in the cell for it to hatch, or the minute larva to appear. Well, now suppose a comb containing eggs is given the bees to rear queens from. That comb may have more or less eggs in it that were laid that day and other eggs that were deposited three days previously. Bees when *forced* to rear a queen never select an egg, but always a larva if it is to be found in the hive. As other larvæ are developed more cells are begun, and so on for about four days in succession. Thus it can be seen that when the young queens begin to emerge they will continue to appear each day for three days in succession. This illustrates the importance of removing the eggs each day from the hive in which the breeding queen is kept. After queen-cells have been capped several days, not even an expert can tell in *all* cases from which ones the queens are most likely to come

from first. Hence the uncertainty regarding the time to look for the young queens.

Not only is the above a most serious objection to rearing queens by the old methods, but others, equally as objectionable, can be advanced.

Night-work in Queen-rearing.—As stated on another page, the night work that is necessary in order to save young queens from being destroyed, either before or after they leave the cell, is more than a person can endure who has worked hard during the day, and I was actually compelled to devise some better method for rearing queens.

Before adopting the present plan now practised in the Bay State Apiary, I think I did more work during the night than I did in the daytime. The night work was to watch queen-cells, and as soon as a queen emerged she was at once removed to prevent her from destroying other queens, or the remaining cells. This work was necessary from the fact that the cells were so constructed that they could not be separated without destroying a large number of them. It really seemed as though queen-bees could not be born except in the night, as by far the largest percentage of all I reared seemed to appear between sunset and sunrise. Such operations as watching queen-cells at night and removing queens are now numbered with the things of the past.

After practising all the known methods as given in many of the books devoted to bee-culture, and the methods as recommended by the most prominent apiarists of the world as published in the several bee publications, it occurred to me that I had travelled in those old ruts as long as necessary.

How to avoid the night work was the one thing that with advancing years I must in some way overcome. Just how it was to be done required not a little study and considerable experimenting. However, I succeeded in devising a plan for compelling bees to construct queen-cells in such a way that *all* could be separated without injuring any.

Those experiments were conducted many years ago, yet nothing new on this particular point of having queen-cells built in rows has been devised, while in all other particulars connected with queen-rearing, much advancement has been made, as will be noticed as we proceed.

Starting the Cells.—The plan I shall describe for having queen-cells built in rows, as illustrated on another page, was devised and first practised in the Bay State Apiary some ten years ago. Since it was made public, several foreign queen dealers, of more or less note, have adopted it and claim it as an invention of their own. Some noted English authors of bee literature have coolly informed their readers that they do not agree with me in all I claim in the several editions of the *Bee-keepers' Handy-book*, notwithstanding the fact that hundreds of people have visited the Bay State Apiary and seen these doubtful things in actual operation.

The plan for having the bees build queen-cells as hinted, and which have been practised so many years by some of the best queen-dealers, is really the only one that comes *nearest* to nature in any degree outside of natural swarming. In fact, many of the queens reared by these methods are superior to those reared under the swarming impulse. This, of course, some few people will doubt, yet the queens can be produced that will speak for themselves.

I have no idea that all who read this work will agree with me in everything claimed. That would be too much to expect. Yet what is herein stated is worthy of the attention of those who keep bees either for pleasure or profit. I am giving no theory, but actual facts.

Rearing Queens in large quantities.—While the first plan given here for producing queens relates more particularly to rearing them on a *large* scale, nevertheless it will be found one of the best, even though only a small number are to be reared.

Many of those who will read this have been made acquainted through the *Handy Book* with the details of preparing the combs and eggs for starting cells, yet it is necessary to give them again, as hundreds of those who now read the *American Apiculturist* do not have the least idea regarding the best methods practised for rearing queens.

Preparing the Comb and Eggs for Queen Cells, Necessary Tools and Fixtures to have at Hand.—When ready to set the bees to building cells, one of the combs moved from the hive in which the breeding queen is kept, is taken to a warm room which had been previously prepared for quickly doing the necessary work. There is at hand an oil-stove, for heating the room, and an iron pan, say one that is twelve inches long, six inches wide, and not less than three inches deep, in which is a quantity of beeswax and rosin, which should be sufficiently heated to have the material mix thoroughly.

An old table-knife, one having a very thin blade, and made quite sharp, is one of the most convenient and handy tools that I have in the apiary. This is used for cutting foundation or comb of any kind. A knife for such a purpose will work nicely if first warmed.

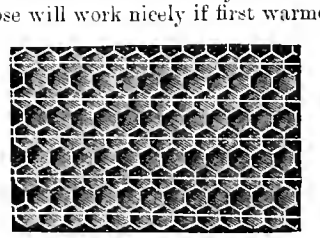

Fig. 4.—Comb containing eggs.

A quantity of hot water should be at hand to dip the knife in occasionally. When not convenient to have the water, it may be warmed by the blaze of a kerosene lamp.

Now we are ready to cut the comb from the frame. Bear in mind that the last eggs deposited by the queen are those near the edge of the comb, and in order not to take them the comb is cut half an inch in from the frame. After warming the knife again, the comb is cut in strips through alternate rows of cells as indicated by the lines in figure 4. When this has been done the pieces are laid flatwise upon a board, or on the table, and about half of the cell is cut off as illustrated farther on. The knife should be very warm and sharp, or the ends of the cells would be made so ragged that the bees would be apt to remove the comb entire, and no cells would be made.

(*To be continued.*)

HUNTS BEE-KEEPERS' ASSOCIATION.

The committee recently appointed by the general meeting of the Bee-keepers' Association to consider the best means of carrying on the Association and increasing the subscription list, met at the Fountain Hotel, Huntingdonshire, on Saturday last, and as a result of their deliberations the following letter was drawn up for sending throughout the county:—

'Hunts Bee-Keepers' Association.

'(President, the Earl of Sandwich.)

'This Association was established some years ago with the view of encouraging the cultivation of bees and the production of honey by the cottagers and agricultural labourers of the county. From want of sufficient income the committee regret that hitherto they have not been able to achieve that which was the primary object in establishing the association—the providing of an expert who would visit and instruct in bee-culture those becoming members of the society and

desiring his assistance, and fear that unless additional subscriptions are received the Association must be discontinued.

'We, the undersigned, having been appointed at a general meeting a committee to consider what steps should be taken to increase the income of the Association, appeal to the residents of the county, inviting them to become members of it, believing it may be made of great utility.

'The committee could arrange for a lecture on bee-keeping to be given in your neighbourhood on your communicating a desire to have one, to the honorary secretary, Mr. C. N. White, of Somersham, who kindly offers his services gratis, out of pocket expenses excepted. —Yours faithfully,

'Sandwich,	'J. H. Howard,
T. Coote, Junr.,	A. W. Marshall.
C. G. Hill,	C. N. White.

'*December* 31, 1888.'

Mr. White reported that the Rev. C. G. Hill would at the annual meeting allow himself to be nominated for the position of honorary secretary.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," c/o Messrs. *Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 2nd page of Advertisements.)*

*** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

B.B.K.A. AND COUNTY ASSOCIATIONS.

[1953.] I have read with considerable curiosity and interest the discussion and letters published in the *B.B.J.* concerning the relations between the B.B.K.A. and the affiliated County Associations. Being entirely an outsider, I have failed to discover any *real* cause or reason of complaint, or any sign of weakness on the part of the B.B.K.A.

It appears from Mr. Webster's letter (1857) that certain county representatives consider they have not a sufficient voice in the management of the B.B.K.A., nor can I personally perceive that they can lay claim to any right of priority, my opinion being that county representatives should hold a somewhat subordinate position, and that their influence should only have weight where matters pertaining to County Associations are directly under consideration. Seeing that the B.B.K.A. does not, to my knowledge, intrude any direct interference with the proceedings of the County Associations, Mr. Webster's letter appears rather one-sided, nor is his reasoning that 'if the Counties flourish, the mother must do the same,' quite clear. Mr. Seager's suggestion (*B.B.J.*, November 1) for the formation of Local Associations (the many in place of the one) raises the difficult question of Local Secretaries. These will, under the proposed scheme, become Association Secretaries, and will have the whole responsibilities of Hon. Secretaries put upon them. Mr. Seager suggests 'shrewd business men,' but where are they to be found? Even in large Associations where the work may have approached a routine business, Hon. Secretaries find they have continually to work hard to keep matters in satisfactory course; how much more will be the difficulty when gentlemen are wanted to organize and establish new Associations and obtain new subscribers? In our county we are unable to find gentlemen to take up even small village clubs, where the work would be half done by the promoters of the various village flower-shows with which we wish to join hands. I fear most gentlemen who have the necessary time at their disposal will object to take up a matter with which they are not conversant, and such gentlemen, as a rule, would hardly take up bee-keeping as a study or hobby for the benefit of their fellows, for 'bees have stings.'

It appears to me that many Associations are practically held together by the enthusiasm of the few, and in some cases no doubt the Hon. Secretary is the real motive power. It is here, I fancy, that will be found the stumbling-block in the formation of Local Associations, and there is also to be considered the palpable objection that the weakening of some of the existing Associations, by attempting to raise two in place of one, may end in the destruction of both. If 'unity' be admitted as 'strength,' then a divided interest must prejudicially affect the whole. Mr. Seager points to the 'clique' complaint, but this 'disease' is quite likely to attack any Association, great or small. However, I take it there could be no objection for the formation of a Local Association which may be affiliated to the B.B.K.A., in cases where it would be admitted by two or three County Associations that portions of those respective districts are isolated, and could be better worked by an independent Local Association (by this I mean that the adjoining boundaries of two or more counties might conveniently establish a Local Association), or where in large counties existing Associations admit, there may be ample scope for two or more establishments being formed without mutual injury. I deprecate any authoritative acknowledgment of the rights of a few malcontents in any moderately-sized county or appropriated district to attempt the formation of an opposition Association, and agree with Mr. Garratt when he says, 'the independent multiplication of societies would bring difficulties.' No doubt Mr. Woodley is correct when suggesting the more intimate connexion between British and County Associations, but how is this to be effected? The suggestion is worthless without the means of accomplishment, and his desire to acquire additional voting powers for County representatives cannot affect the intimacy in the least.

Every one would admit that it would be very desirable to infuse fresh impetus to County Associations, but I fail to see how so useful an ingredient could be supplied by the B.B.K.A. It is a question of local effort. I fancy Mr. McClure (1875) would be rather disgusted at the result of his suggestion (if carried into effect) anent the attendance of Local Presidents at the annual meetings of the B.B.K.A. Mr. Woodley, in (1861), evidently tunes upon Mr. Webster's harp, requiring only increased voting power, but I would ask, To what end? What arguments can be adduced to prove that increased voting power to County representatives would assist County Associations? Certainly no Association, as far as I have read, complains that it does not receive an excellent *quid pro quo* for its affiliation fee; and I would also respectfully suggest that an 'exclusive' Committee—at present evidently the reproach attaching to the B.B.K.A.—is far better than a divided one, for the latter could never be unanimous; and if Associations, by their representatives, have the power of voting for Committeemen, they should abide by the election.

I can understand and appreciate the desire on the part of the B.B.K.A. Committee not to introduce any question of unpleasant aspect or grievance, be they righteous or not, for public consideration, such as might be considered in Committee. I consider such an objection is a very worthy one, for no public Association of any standing would permit public controversy. Mr. Grimshaw in (1882) greatly assists in the solution of the whole question. He also points to the difficulties of a large

county like York (but, by the way, they exist in like proportion in smaller ones), and it is apparent there is room for more than one Association there. In carefully reading the correspondence published, I do not find many practical suggestions which would be of real benefit to the community, so much easier is it to pull down than to build up; nor is any scheme mooted for improving the condition of County Associations. Surely the improvements required should be made in great measure by local efforts. I fancy, after all, the greatest object of the B.B.K.A. must be the organization and successful management of the various exhibitions, chiefly the one held in conjunction with the R.A.S.E. Undoubtedly the annual shows benefit every bee-keeper in the kingdom. They tend to reduce costs of appliances, bring out new, cheaper, and better ones, and modes of management, and besides the instruction given both by shows and lectures, create or promote (I hope) a demand for, and sale of honey. That exhibitions *do* tend to improve the various industries concerned, we have the highest authority, notably, of late, the decisions of the Parliamentary Commission upon Horse Breeding, which devoted the whole Government grant of 1888 in prizes at Nottingham Show. Nor do I quite see how County Associations can do better. In many districts modern bee-keeping is fairly well known to the agricultural classes, and wherever this is admitted, I apprehend that a well-organized show, with classes for cottagers, artisans, amateurs, professionals, and manufacturers, should meet the requirements of local bee-keepers. Take the instance of the English Agricultural Societies. Even the R.A.S.E. gives but little in comparison to their members beyond the annual show, and many other Societies have no other object. Should the suggested alteration of County to Local Associations be effected, I fail to see where the B.B.K.A. will improve its position. In the case of Shropshire, affiliation fees have been paid from 1877 to 1884, when, in consequence of the inability to find a Hon. Secretary to carry on the work, the Association dissolved. In 1887 steps were taken to get up a honey show, which, being successful, enabled us to reform the Association, but no fees have been yet paid. This year, 1889, it is proposed that we become affiliated, but as we receive a full return in shape of prizes and privileges, I fail to see how the B.B.K.A. will benefit by our affiliation. It was quite as well off last year when no fees were paid. The balance of benefit will clearly be with us this year.

It seems apparent that the B.B.K.A. Committee is prepared and anxious to meet the wishes of the bee-keeping community, and, as it is composed of those who give their time and trouble without appreciable benefit, and are most certainly perfectly disinterested, full justice should be accorded for the good work done. If reformers, even with good intent, set to work, let them be careful lest they reform away the whole constitution.

In thus putting down my opinion, I hope I may not have touched the susceptibilities of any one, but as some alteration in the existing state of affairs seems imminent, I have thought that possibly the ideas of a totally disinterested 'outsider' may be of interest, more especially as no outsider appears to have ventured to express his views upon the subject; and if I may humbly presume to offer advice, I would urge the avoidance of any course of procedure calculated to alienate those of high social standing who have taken the bee-keeping industry under their special protection, and who have undoubtedly been the means of bringing it to its present high state of popularity.

I trust this letter may not be considered an infliction, and wish all your readers a happy and good honey-producing New Year.—W. G. Preece, Jun., *Local Hon. Sec. Shropshire Bee-keepers' Association, January 3rd*, 1889.

SITUATION OF HIVES.

[1954.] Your correspondent, Mr. A. Sharp (1944) does well to follow up a subject that has had but little ventilation in the *Journal*, though, doubtless, the matter is one that has had considerable attention.

Hitherto I have placed my hives almost exclusively near the ground, but those few which were not so have shown an advantage in their favour, sufficiently important to induce me to raise all in future about a foot from the ground.

With a few stocks the advantages either way may not be very apparent; but it is a fact, nevertheless, that the frost is more severe on the surface of the earth because of the greater moisture, and the dampness with cold is, of course, detrimental to the bees; for while there may be a difference of only two degrees, or less, between the temperature at the earth's surface and that a foot or two above, the effect is worse than with a temperature ten or twelve degrees lower, if dry. In the summer it matters little; but how often my aching back has made me wish all the hives were a foot or so higher! Yes, in some ways legs are a nuisance, but while, perhaps, a little more expensive, the stand should never be a fixture to the body of the hive.

I do not think the practice of placing hives near the ground has been general in this country, but it would be interesting to hear from those who have had the opportunity of testing the matter on both plans.—S. Simmins.

FRAME STANDS.

[1955.] I should like to put forth a suggestion, which I think if carried out would be a boon to many bee-keepers. I wish some of our hive-appliance manufacturers would provide us with a light trellis-work cast-iron frame-stand for hives. I should like one about 19 inches square and 6 inches high. The sides might simply consist of diagonal bars resting on a base of not less than 1½ inch in width. The front and back need only have an arch without a base. Four screw-holes should be provided in the top of the framework to enable the hive floor-board to be screwed on to the stand. The advantages of such a stand are—

1. Elegance, when nicely painted.
2. Free circulation of air beneath the hive.
3. A bad refuge for insects.
4. Practically indestructible.—Hive.

WASPS' NESTS.

[1956.] Having a little interest in the wasps' nest that J. W. Blankly took in an open cow-shed—'Useful Hints' rather doubts his word for a wasp to build a nest in an open shed—I have sent you a nest that was started last spring in an open cow-shed, that was suspended to the rafters. There were several larger than this, only they got knocked down in killing the wasps last spring. There were a great many queen-wasps in this district, the bad season, and so many enemies, I don't think anyone who is a lover of bees would spare the life of a queen-wasp.—Mid Sussex, *January 7*.

CURIOUS MICROSCOPICAL EFFECT.

[1957.] The other evening a friend was trying a microscope in his magic lantern, and had prepared a few makeshift slides. Among other things he had pressed a portion of a bee, on which was a parasite (a *Braula*, I suppose). The heat set the little creature in motion, and as there was ample space between the two pieces of glass, it careered about in the liveliest manner, giving the appearance of a mouse running wildly about the sheet. It would certainly be a striking effect if this display could be produced as desired.—C. R. S., *South Cornwall, Jan.* 11.

WINTERING BEES.

BEST AGE FOR BEES TO GO INTO WINTER QUARTERS.

[1958.] As is well known, I always winter my bees on the summer stands, and for years I have met with practically no loss. This I conclude depends more upon preparation than any other cause, and after repeated experiments I have come to the conclusion that extra-late breeding makes no real difference in results.

For years I had the idea that late-bred bees must winter better than those that were older, but the theory, plausible though it be, is not borne out by the facts; that is to say, I get no better results in wintering from causing the late breeding, than I do from allowing strong colonies to manage the matter as they please.

Of course, there are exceptional cases. If a colony is weak in late summer, from any cause, such as a poor queen, or the queen being crowded out by an extra honey yield, as may happen at times where the greatest care is used, then I may be obliged to strengthen up my colonies for winter by forcing the queen to the latest possible point of time; but under ordinary conditions, I find that bees bred as ordinarily done, with no special attempts to force the matter, go through the winter fully as well, and come out in the spring fully as strong, as with forced breeding; and such being the case, I am of the further opinion that too much interference in that direction, at the hands of inexperienced persons, under the instructions as given at the present time, will prove hazardous, and do more harm than good.

I do not think that in the hands of experienced men, late breeding will do any harm, but I fear that those who attempt the matter without knowing just how it should be done, will fail in the work.

Late breeding artificially is rather against the natural law, and any variation from that law must be made on certain lines, else failure must ordinarily result; for this reason, I advise those only who have large experience to attempt the matter on a large scale. Those who have no large experience, should go slow and gain that experience by working on a colony or two only, until they fully understand the matter.—J. E. POND, *North Attleboro, Mass.* (*American Bee Journal*).

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

J. R. W., *Natal.*—1. *South African Queen.*—We regret to say that the queen and workers were found dead on arrival. We have written to you privately. 2. *Coccidæ.*—A further and complete examination of the coccidæ sent by you in October last has determined them to belong to the genus *Icerya*, and it is probable that they are identical with *Icerya Purchasi*, a well-known pest throughout the Southern States of North America, and common in Cape Colony. It is largely dealt with by Professor Riley in the *American State Reports*, and is at present a subject of interest as regards its extinction there and elsewhere. The close similarity of the legs and antennæ of these insects to those of *Ortonia Natalensis* has considerably exercised naturalists here, who, being accustomed to determine species by references to these parts, were inclined to regard the two creatures as being therefore closely allied, notwithstanding the great difference in their external appearance, size, and colour. Happily all doubts have been set at rest on this point by the successful hatching out of the larval forms of both species, which show differences which are quite conclusive in establishing the fact that *Ortonia* and *Icerya* have nothing to do with each other. As a matter of microscopical interest, the subject was brought before the Quekett Microscopical Club at its ordinary meeting in December by Mr. R. T. Lewis, F.R.M.S., who exhibited specimens of the larvæ both living and mounted, as well as drawings of the same. Some interest also attaches to the 'ladybird' which got inclosed in the box with the *Icerya*, and, as formerly stated, destroyed large numbers of the larvæ *en route*. It is identified as belonging to the genus *Rodolia*, and will probably prove to be the species found in Cape Colony for which Miss Ormerod proposes the name *Rodolia Iceryæ*.

A SUBSCRIBER.—*Old Honey.*—Yes; you could not do better than mix some with sugar till it is about as stiff as soft putty and place some over the frames at the first opportunity.

J. W. PAUL.—The sample of honey sent is very good.

Business Directory.

HIVES AND OTHER APPLIANCES.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin
APPLETON, H. M., 256A Hotwell Road, Bristol.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
BURTT, E. J., Stroud Road, Gloucester.
EDEY & SON, St. Neots.
GODMAN, A., St. Albans.
HOWARD, J. H., Holme, Peterborough.
HUTCHINOS, A. F., St. Mary Cray, Kent.
MEADHAM, M., Huntington, Hereford.
MEADOWS, W. P., Syston, Leicester.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
STOTHARD, G., Welwyn, Herts.
WALTON, E. C., 82 Emmanuel Street, Preston.
WEBSTER, W. B., Binfield, Berks.
WOODLEY & FLOOD, 26 Donnington Road, Reading.
WREN & SON, 139 High Street, Lowestoft.

HONEY MERCHANTS.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
BALDWIN, S. J., Bromley, Kent.
EDEY & SONS, St. Neots.
HOWARD, J. H., Holme, Peterborough.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.

FOREIGN BEES AND QUEENS.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
BENTON, F., Laibach, Carniola, Austria.
EDEY & SONS, St. Neots.
HOWARD, J. H., Holme, Peterborough.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.

METAL ENDS.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
EDEY & SONS, St. Neots.
GODMAN, A., St. Albans.
MEADOWS, W. P., Syston, Leicester.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.

COMB FOUNDATION.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
EDEY & SONS, St. Neots.
HOWARD, J. H., Holme, Peterborough.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
STOTHARD, G., Welwyn, Herts.

COMB FOUNDATION MILLS.

GODMAN, A., St. Albans.

HONEY GLASS MERCHANTS.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
BLOW, T. B., Welwyn, Herts.
PEARSON, F., Stockton Heath, Warrington.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

WINDSOR MEETING, 1889.

Commencing MONDAY, JUNE 24th, and closing SATURDAY, JUNE 29th.

PRIZE LIST FOR HIVES, HONEY, &c.

Exhibits in Classes 1, 3, 4, 5, 6, 7, 8, 9, 10, 11 (sections excepted), must be manufactured by the Exhibitor. Exhibits in Class 1 and in Class 19 to be staged and repacked by the Exhibitor.

CLASS 1.—For the best collection of Hives and Appliances, to consist of the following articles:—One Frame-hive, priced at 15*s.*; one ditto, priced at 10*s.* (*Note.*—These Hives must be fitted with arrangements for Storifying.) One Observatory Hive; one Hive of Straw or other material, not entirely of wood, for obtaining either Comb or Extracted Honey; one pair of Section Crates fitted with Sections; one Extractor, one slow stimulating Feeder, one rapid Feeder; one Smoker or other Instrument for quieting Bees; one Veil, one Swarm Box for travelling, capable of being used as a Nucleus Hive; one Travelling Crate for Comb Honey; five other distinct articles not specified at the discretion of the Exhibitor. Each article to be priced separately. No articles must be added to the collection, nor any portion of the Exhibit removed during the Show. First Prize, 40*s.*; second Prize, 30*s.*

CLASS 2.—For the best Observatory Hive stocked with Foreign Bees and Queen. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 3.—For the best and most complete Frame-hive for general use, unpainted. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 4.—For the best and most complete Frame-hive for general use. The Hive shall consist of (1) a Floor-board on four short legs; two Chambers or Body-boxes, equal in size, similar and interchangeable, both to have porches, with entrances not less than 12 in. wide, that can be contracted at pleasure, each chamber to be capable of holding at least ten Standard Frames, but only one set of Frames with strips of foundation fixed and two division-boards to be supplied. (2) One Case of $4\frac{1}{4}$ by $4\frac{1}{4}$ Sections, with foundation fixed and separators, of such size as to admit of its being placed inside the chamber. (3) A substantial Roof, sufficiently deep to cover a case of sections and afford ample protection to the whole Hive, the price of each part, namely, stand and floor-board, body-box, case of sections, and roof, to be given separately, the whole not to exceed 15*s.*, unpainted. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 5.—For the best and most complete Frame Hive for general uses. The Hive shall consist of (1) one Chamber or body-box, containing ten Standard Frames having strips of foundation fixed, two division boards, entrance porch, and floor-board, the chamber capable of being used with a second of the same pattern. (2) One Case of twenty-one Sections, $4\frac{1}{4}$ by $4\frac{1}{4}$, with foundation fixed and separators. (3) A Roof sufficiently deep to cover one case of sections at least, the price of each part, namely, floor-board, body-box, case of sections, and roof to be given separately, the whole not to exceed 10*s.* 6*d.*, unpainted. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 6.—For the best Honey Extractor, price to be taken into consideration. First Prize, 15*s.*; second Prize, 10*s.*

CLASS 7.—For the best Honey Extractor, price not to exceed 12*s.* 6*d.* First Prize, 15*s.*; second Prize, 10*s.*

CLASS 8.—For the best pair of Section Racks, completely fitted for use and interchangeable, price not to exceed 3*s.* 6*d.* each. First Prize, 15*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 9.—For the best Feeder for slow stimulating feeding. First Prize, 10*s.*; second Prize, 5*s.*

CLASS 10.—For the best Feeder for quick autumn feeding, capable of holding at least 5 lbs. of food at a time. First Prize, 10*s.*; second Prize, 5*s.*

CLASS 11.—For the best Smoker. First prize, 10*s.* second Prize, 5*s.*

CLASS 12.—For Useful Inventions introduced since 1887. Special Prizes according to merit.

CLASS 13.—For the best 12 Sections of Comb Honey, the gross weight to approximate 24 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 14.—For the best 12 Sections of Comb Honey, the gross weight to approximate 12 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 15.—For the best 6 Sections of Comb Honey, the gross weight to approximate 6 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 16.—For the best Exhibit of Run or Extracted Honey in jars, not exceeding 2 lbs. each, the gross weight to approximate 24 lbs. First Prize, 30*s.*; second Prize, 20*s.*; third Prize, 10*s.*; fourth Prize, 5*s.*

CLASS 17.—For the best Exhibit of Heather Honey (Comb or Extracted), the gross weight to approximate 12 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 18.—For the best Exhibit of Granulated Honey in jars, not exceeding 2 lbs. each, the gross weight to approximate 12 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 19.—For the best Exhibit of Comb and Extracted Honey, in any form, staged on space 4 ft. by 4 ft., height not to exceed 5 ft. above the table. The gross weight of each kind to be stated. First Prize, 60*s.*; second Prize, 40*s.*; third Prize, 20*s.*

The Exhibits in this class to be staged by the Exhibitor.

[A Silver Medal, independently of Money Prizes, will be given for the Exhibit most tastefully arranged.]

CLASS 20.—For the best plan and design for an Apiary of 50 Hives on two or more acres of land, to include a suitable building for extracting and general work. The design to show arrangements for growing Honey- and Pollen-producing plants, attention being given to the value of the crops for other purposes. First Prize, 40*s.* and Silver Medal; second Prize, 20*s.* and Bronze Medal.

CLASS 21.—For the best Diagrams suitable for a Lecture on Bee-keeping, or Technical Lessons in Rural Schools. First Prize, 40*s.* and Silver Medal; second Prize, 20*s.* and Bronze Medal.

CLASS 22.—For the most interesting and instructive Exhibit of any kind connected with Bee-culture not mentioned in the foregoing Classes. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

The Council reserve to themselves the right to publish for Educational purposes any Exhibit entered in Class 20 and 21.

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Editorial, Notices, &c.

PLANTING FOR BEES.

The question has often been asked, 'Does it pay?' Well, it will and it will not, as the saying is. Before the apiarist spends any money in this direction, he should very seriously consider his own peculiar situation. The possibility is that if his district really will not support his apiary, it will pay him better to move his apiary to where it will have a chance of giving satisfactory results.

But, on the other hand, a district can often be greatly improved over a term of years by the expenditure of a little time at a slight yearly cost, especially if there happen to be much waste land in the vicinity. Meadows can be improved by scattering a little white clover seed as opportunity offers. Neighbouring farmers may be induced to grow alsike in the place of, or mixed with, red clover, especially if the bee-keeper is prepared to pay the cost of a portion of the same. Odd corners or rough land generally can be utilised by sowing mellilot clover, particularly if it happen to be along lanes, by the roadside, or where deep cart-ruts are made over ground not actually in use. Clover is very partial to road-grit, and we have known a very heavy growth of white clover come where the grass land had been dressed with this material, and at no cost whatever for seed.

According to present experience, we should say it does not pay to *cultivate* land for bees year by year, but where it can be had at a very cheap rate, and a crop is put in (carefully, in the first instance), that will afterwards take care of itself, such as mellilot; then, without doubt, it will pay well.

Small garden crops of course are simply valueless to the large apiarian for honey, but it is a pleasure to many to make a collection of such plants as bees appear to like, giving a small space to each variety, and we have no other wish than to encourage this commendable hobby.

It must not for a moment be supposed, however, that these patches will offer any real test for arriving at the most desirable plants to be cultivated for the production of honey on a large scale. The very plants the bees appear most fond of are too often such as it would be utterly impossible to cultivate on a large scale, while the patch that now is neglected as a miniature crop, if grown by the acre, would be visited by tens of thousands, while the winged workers would simply 'roar' as they pass to and from the apiary in one continual stream.

We have then to look to what will produce honey on a large scale at the least cost in rent and labour when the desirable plant has no other use, and the land so occupied has no higher value; while those who have the means of growing crops for hay can certainly make it to their own advantage to accommodate the bees at the same time, and thus secure the best results in a double harvest. In the case of crops left for seed, there can be no question as to the great benefit and more certain profit to be secured from the flowers being freely visited by the hive bee, and so ensuring the fullest possible fertilisation of the bloom, and consequently heavy crops of fully developed seed. On the other hand, when wanted for hay of the highest quality, it must be a consideration whether it will pay better to let the crop stand a few days longer for the benefit of the honey crop or be cut immediately the earlier bloom begins to fade. This is rather a delicate question, but one we should not hesitate to decide upon in favour of the bees on the one condition that the best of weather prevailed, and they were making such good use of the time as is well known they can do as occasion offers.

We have considered the question of 'planting' in so far as it relates to honey, but while a large crop only is of use for that purpose, the quantity of pollen that is obtained from a small bed of certain plants is something considerable. Nevertheless we question if many bee-keepers really have any need to grow for this purpose, seeing how freely this article is generally brought in. Wallflowers yield pollen early in considerable quantity. Crocuses we cannot recommend, after an extensive experience, and we mention the fact as so many have thought highly of them. They come early, and that is nearly all we can say for them, as we have watched bee after bee, and have been surprised and really disgusted to note the very long time it took to get a load, contrasting very unfavourably with the work done on wallflowers and mustard, which latter we can recommend as a plant that can be brought in to suit almost any district at a time of scarcity. Rape sown during the previous autumn will give an unlimited supply of pollen from the

end of April, earlier or later, according to the season, for three or four weeks just at the right time; but for the most part bee-keepers can use their own judgment, bringing into bloom what is likely to prove most serviceable at a time of scarcity, according to their respective needs, while plants grown especially for honey may, in many cases, be made to bloom several weeks longer than is naturally the case, by a judicious pruning of the fading flowers, or partial cutting of the crop, as the case may be.

GLEANINGS.

In the *Canadian Honey Producer*, Mrs. H. F. Bullen says, 'I attribute my success in wintering so far to my never putting my bees away damp; and to avoid this, before frosty nights replace the summer quilts with thin factory cotton, over which I put quilts made with a layer of wool between coarse canvas, and put on a cap to the hive so that the lid does not lie flat on the quilt and keep the moisture from the breath of the bees in the hive. I am wintering eight colonies outside, packed in sawdust, and now that I know how to arrange the covering over them find they winter as safely and with as little honey as in the house, but it is more trouble to pack and unpack than to carry into the house in the fall and out of it in the spring. The storm porch over entrance of hives saves from any danger of smothering by snow drifting; in said storm porch is a small box as wide as entrance of hive, with a flap to let down in front to keep the drifting snow out. A 2-in. augur hole in one end of the box admits air even if hive and porch are completely covered with snow.

In the *Home and Farm* T. E. Hamburg says: 'It is a well-known fact that if a pure Leghorn pullet mates but once with a black Spanish cock, her chicks ever afterwards will occasionally show a black feather; and by like reasoning, and by observation, which comes by a long practical experience, I believe it is so with bees. If those who believe in the theory of parthenogenesis beyond that the egg can be laid impregnated or not, and think that the mating of an Italian queen with a black drone has no effect on her progeny, must be somewhat in error, for certainly by absorption the queen's blood becomes somewhat contaminated, as the effect of such mating. She may be able to produce pure or nearly pure drones, but the contamination is in her blood all the same, which will show to some extent in her workers, and of course, if an egg from such a queen, which would have produced a worker, be so treated that it produces a queen, such a queen will not be a pure Italian, but will be hybrid, and her drones, of course, will partake of this quality.'

In the *American Bee Journal* J. O. Shearman says that the shrill cry 'Pe-e-p, peep, peep' of young queens, and the 'Quahk, quahk' of those in the cells are produced by their wings. He has seen them do it—a short, quick, vibrating motion; and the hoarser 'note' of the queen in the cell is caused by its confined position, though they have room to make the motion just the same. To him it appears that this alone should settle the question 'Do bees hear?' What is hearing but concussion of waves of sound upon any sensitive object, whether it be ears or the soft parts of bees *all over them?* Bees are very sensitive, and their senses of sight, smell, and taste, are more acute than most other animals, and he thinks it is equally so to sound.

With regard to robbing the *Rural Canadian* says that after the bees have once become engaged in robbing, they are of no use in the apiary, as they will continue to steal during the rest of their lives, and the sooner they are disposed of the better. If much robbing is going on in the apiary the thieving colonies should be found and removed to a new location, at least a mile away. By sprinkling flour on the robber bees as they leave the hive being robbed they can be easily traced to the stand where they belong. He has often broken up a colony which were robbing by blowing tobacco-smoke in their hive. When this is done care must he taken that the other colonies do not turn to and rob the one that has been doing the robbing.

Useful Plants.—According to the calculation of our best botanists there are 2300 different plants in the world that are of use to man. Out of this number 1140 have medicinal uses; 283 have edible fruits or seeds; 117 furnish vegetables; 104 give us roots, tubers, or bulbs; 40 belong to the cereals; 21 produce sago; nearly as many yield sugar and honey; 30 are oleaginous. There are therefore 600 species that serve us as food, 8 which yield wax, 76 produce colouring matter, 16 soda salts, 40 are forage plants, 200 have technical and industrial uses. There are about 350 poisonous plants, of which 66 have narcotic properties.

BEE-KEEPERS' VOCABULARY;

Or, Glossary of Technical and Scientific Words used in Works upon Bee-keeping.

Brood-workers. *n. pl.* (Fr. *Sax. weore, wore,* work.)—Worker-bees in the brood state; worker-brood.

Brooding-bees.—The nurse-bees are so called by some writers.

Brown bees. *n. pl.*—See *Black bees.*

Brownian movement.—The irregular oscillatory movement observed in microscopic particles or 'molecules' suspended in a limpid fluid, so named after Dr. Brown, who first discovered this movement; molecular movement.

Brum. *v. rare.* (*Ger. brummen.*)—To hum.

Brush. *n.* (*Fr. brosse,* a bush.)—Short stiff hairs on the legs of bees used to remove the pollen which collects on different parts of the body; appliance consisting of a piece of wood set with the small tufts of hair or bristles, used for sweeping bees off combs; utensil for sweeping and brushing.

Brynstam, brynt-stain. *n.* Sulphur. (Scotch.)—See *Brimstone.*

Buckwheat swarm.—Applied in America to a late swarm issuing during the blooming of buckwheat.

Buccal. *adj.* (fr. *L. bucca,* a cheek.)—Of, or pertaining to, the cheek; the jaws of bees are called 'buccal appendages.'

Bulb. *n.* (*L. bulbus,* onion.)—The soft enlargement of the root end of hair, which contains a nerve end, and constitutes it a sensitive touch organ. A large proportion of the hairs on the outer skeleton of the bee are furnished with a bulb.

Bulbous. *a.*—Of the nature or shape of a bulb; pertaining to a bulb.

Bulge. *sb.* (*Old G. belgan,* to swell.)—A swelling out; a protuberance.

Bum. *v. intr.* (Onomatop.)—To buzz; to make a humming noise; or Boom, *q.v.* (North of England.)

Bumbee. *n.*—A humble bee; a wild bee that makes a noise. (Scotch.)

Bumbee-byke. *n.*—A nest of humble-bees. (Scotch.)

Bumble. *v.*—To make a humming noise. (Kent.)

Bumble-bee. *n.* (fr. O. Du. *bommelen*, a frequentation of *bommen*, to boom.)—A bee that booms or hums; humble-bee.

Bumbulation. *n.*—A humming noise. (Kent.)

Bummle-bee. *n.*—Humble-bee. (Yorkshire.)

Bummil, Bummle, Bombell, Bumble. *sb.*—A wild bee. (Galloway.)

Bumping. *vbl. sb.* (Onomatop.)—Striking heavily; applied to the striking of the side of a skep heavily on the ground in order to break the combs from their attachments.

Bunt. *n.*—A fungoid disease of wheat; used by Butler and other writers for puff-ball (*Lycoperdon borista*), formerly used for smoking and stupefying bees; also called frog-cheese, mully-puffs, puckfist, blind-ball, devil's snuff-box, fist-ball, fuss-ball, fuzz-ball, burt. *L. giganteum*, giant puff-ball; a fungus found in meadows.

Bursa copulatrix. (*Lat.*)—A recess on both sides of the vagina into which the male organs are extruded and there locked by the horned *pneumophyses*.

Butcher-bird. *n.*—A bird belonging to the shrike family (*Lanius excubitor*), an enemy of bees, which it destroys and impales on thorns and twigs. Common in France, but a rare visitant in England.

Burning bees.—Destroying bees by means of the fumes of burning sulphur, still practised by some ignorant bee-keepers.

Buzzard. *n.*—See *Bee-hawk*.

Buzzing. *vbl. sb.* (fr. *v.* to buzz, onomatop.)—The humming sibilant sound characteristic of bees.

Bye-hive. *n.*—Obs. form of bee-hive.

CANADA.

Foul Brood.

For some years the reports of foul brood have been becoming more numerous, and as the number of cases reported have increased, so for some time the agitation has also increased for legislation to prevent the spread of the disease. It was proposed that the Ontario Legislature be requested to pass a Bill which might have the desired effect. A number of circumstances however arose, and for the last year the matter has received but little attention. The Blant Bee-keepers' Association, at their meetings last week, however, revived the question. It appeared that up to that time no member had any traces of the disease, whilst in the county of Oxford a number of cases had been reported, one apiarist, after trying almost all of the methods of cure advocated in the numerous bee journals, only to have the disease spread to colonies before apparently unaffected, destroyed about one hundred colonies.

It was resolved that the Blant County Association, through its representatives, request the Ontario Bee-keepers' Association to expend a part of its annual Government grant in paying the expenses of inspectors who shall, at any time desired by them, inspect the apiaries of such as offer bees and queens for sale. Of course without legislation the apiarist need not permit the inspection of his bees, but such a refusal published would almost bear conviction that all was not well, and any one whose bees were free from the disease would probably only be too well pleased to have their bees properly inspected.

Whilst we believe we are, when other lands are considered, comparatively free from the disease spoken of, many prominent bee-keepers feel that something should be done to maintain the present state, or, better still, root out the disease where it exists.

Our winter has been very mild so far; and to-day, January 2nd, there is at Brantford not a vestige of snow, and the temperature, although cloudy, barely freezing, It is hard on our clover. We are all anxiously wondering what our next honey season will be like. My bees are quiet in the cellar, and it is difficult to keep the temperature down to 43° Fahr.—R. F. Holtermann, *Brantford, Canada.*

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

Meeting of the Committee held at 105 Jermyn Street on Thursday, January 17th. Present—Hon. and Rev. H. Bligh, in the chair: Rev. Dr. Bartrum, Rev. J. L. Seager, Captain Bush, Rev. F. T. Scott, J. M. Hooker, and the Secretary. A communication was received from Mr. Glennie, the Treasurer, regretting his inability to be present. The minutes of the last Committee meeting having been read and confirmed, the Secretary read the statement of accounts for the past year, the same being duly signed by Mr. Kirchner, the auditor, and the treasurer. Resolved, 'That the same be received and adopted and published in the Annual Report.'

It was unanimously resolved, 'That the Committee of the British Bee-keepers' Association have heard with deep regret of the death of Mr. W. Raitt, of Blairgowrie, and desire to place on record the high sense they entertain of the invaluable services he rendered to the progress of modern bee-keeping. They trust that the consciousness of the useful life led by their father will be a source of constant consolation to his bereaved children.'

Resolved, 'That the Quarterly Meeting to be held on Thursday, February 21st, commence at 2 o'clock.'

It was resolved to open a special fund on behalf of the Windsor Show and other objects. The Secretary was requested to prepare a paragraph in reference thereto for insertion in the Annual Report.

The suggested amendments to the rules of affiliation as prepared by the special Committee appointed at the last Quarterly Conversazione were further considered. Resolved, 'That the same as amended be placed on the agenda for consideration at the Annual General Meeting.'

Manufacturers and others desiring to advertise in the forthcoming report of B.B.K.A. are requested to communicate with the Secretary without delay.

MIDDLESEX BEE-KEEPERS' ASSOCIATION.

Report for 1888.

Bee-keepers will, in nearly all parts of England, have cause to remember the present year as one of the most disappointing on record. A late and inclement spring was followed by a few weeks of fairly good weather, and then there set in, just when the honey-flow was expected, a series of wet weeks, which not only destroyed all hope of securing surplus stores, but so prevented the development of nectar in the flowers that the bees could scarcely gather sufficient food for the fast-growing larvæ. It seemed at one time as if vigorous summer feeding could alone avert starvation from many stocks. August and September allowed something to be done towards keeping up daily supplies of food from the fields; but we fancy comparatively few colonies were fit for the winter without abundance of syrup being furnished to them during the autumn.

In our own county only one case has been reported of any considerable amount of honey being taken. In this instance, from six very strong stocks, as much as 150lbs. were extracted. We fancy, however, this quite exceptionally prosperous bee-keeper was considerably indebted to a large bean-field near his apiary. It would be interesting to learn whether *aphides* were very plentiful on

the bean plants. They seem to have been scarce on the lime blossoms, owing to the cold and wet July, and happy were those bee-masters who had in their neighbourhood a large amount of the fragrant linden flowers.

The late disappointing season has been most unfortunate, not simply in yielding no profit from the hives, but we fear many who have only lately begun bee-keeping will be still more disheartened by winter losses. As a consequence, there is further to be apprehended a lack of interest in our Association, and a falling off of the number of our subscribers. To prevent these mishaps the committee would urge on all who are interested in apiculture to give practical help and encouragement to their neighbours, who seem unable or disinclined to go on with bee-keeping.

Notwithstanding the difficulties presented by the inclement summer, a show was held in the grounds of our general Secretary, at Hampton Hill, in the month of July. The weather was most unfortunate, and the amount of honey shown very small. The general Secretary was fortunate enough to secure the B.B.K.A. silver medal in the class open to the county, and Mr. C. Wright (of Hounslow) received the bronze medal. Shows were also held in Mr. Hasluck's grounds at Southgate, and at Wood Green. Both of these were successful, notwithstanding the small amount of honey staged.

As there was no possibility of getting up a show in the N.W. Province, the grant of 4*l.* to that Province was resigned in favour of the Hampton Hill and Southgate Shows.

The bee-tent continues to be an attraction at various horticultural and other exhibitions, and there is reason to hope the manipulations therein performed not only interest and amuse onlookers, but stir up the desire to have practical acquaintance with such useful, tractable, and, in ordinary seasons, such profitable insects as bees.

The Expert, Mr. Baldwin, has made during the year two very complete tours—one in the spring, the other in the autumn. It was thought to be especially advisable that he should pay a second visit to the apiaries of members before the season was too far advanced to continue feeding; for there was a well-grounded fear that, through want of stores, the stocks of many inexperienced bee-keepers would perish during the coming winter. The extra expense of the second tour was seen to be thoroughly warranted by the condition in which Mr. Baldwin actually found many stocks.

The committee regret the resignation of the office of district Secretary by Mr. H. R. Leach, of Pinner, and by Mr. Attenborough, of Staines. In the early part of the season Mr. W. M. Graham, our Secretary for the Northern Province, left the county, and his place was filled by Mr. W. Pye English, who also succeeded to Mr. Graham as County representative at the B.B.K.A. quarterly Conferences.

The number of members and the amount of subscriptions do not present any striking differences as compared with last year. About 110 had paid up in time to participate in the annual drawing for bee-appliances.

A suggestion, and a very practical offer to attempt the working of it, has been made by Mr. Pye English. The committee think it well to print the portion of a letter referring to this subject, which was sent by Mr. English to the general Secretary:—'Perhaps it would be convenient to members to have a means of sale, or exchange, &c., *i.e.*, anyone wishing to buy bees, &c., or sell same, should (if he wished) have his name put upon a register, to be kept by the Association, with a note of his requirements. It would work thus—*A* has a swarm for sale, and *B* wants to buy one. *A* writes to the Secretary, who puts him into communication with *B*. The negotiations to be entirely conducted by the two parties. We should only undertake to put the buyer and seller into communication with each other, and they would have to settle everything between themselves. If you think this worth consideration I will undertake the working with pleasure.'

Attention is also called to the want of secretaries for several of the districts.

In conclusion, the committee have to report that they have met five times during the year for the transaction of various important business; and they feel it due to Major Fair to express their sincerest thanks to him for kindly attending to many extra duties consequent upon the general Secretary's unavoidable absence for some months on the Continent.

THE BERKSHIRE BEE-KEEPERS' ASSOCIATION.

The Annual Meeting of this Association will be held on Wednesday next, January 30, at the Victoria Café Restaurant, 13 Broad Street, Reading. As the business to be transacted is of a specially important character, it is hoped that an effort will be made by members from all parts of the county to attend. The following are the arrangements for the occasion:—

4 p.m., meeting of Sub-committee on Organization; 5 p.m., meeting of General Committee. 6 p.m., Conversazione, and an exhibition of bee appliances, to which members and their friends are invited—refreshments will be provided. 7 p.m., Annual Meeting of members; the Rev. R. Errington, vicar of Clewer, in the chair.

Business.—Presentation of annual report and balance sheet, revision of rules, election of officers. Notices of motion should reach the Hon. Sec. not later than January 26. 8.30, an Address will be given by Mr. T. B. Blow, F.L.S., on 'My Experience among American Bee-keepers.'

The Humble Bee.—It is the patient humble bee that goes down into the forest of the mowing grass. If entangled, the honey bee climbs up a sorrel stem and takes wing, without any sign of annoyance. His broad back with tawny bar buoyantly glides over the golden buttercups. He hums to himself as he goes, so happy is he. He knows no skep, no cunning work in glass receives his labour, no artificial saccharine aids him when the beams of the sun are cold, there is no step to his house that he may alight in comfort; the way is not made clear for him that he may start straight for the flowers, nor are any sown for him. He has no shelter if the storm descends suddenly; he has no dome of twisted straw, well thatched and tiled, to retreat to. The butcher-bird, with a beak like a crooked iron nail, drives him to the ground, and leaves him piereed with a thorn, but no hail of shot revenges his tortures. The grass stiffens at nightfall (in autumn), and he must creep where he may, if possibly he may escape the frost. No one cares for the humble bee. But down to the flowering nettle in the mossy-sided ditch, up into the tall elm, winding in and out and round the branched buttercups, along the banks of the brook, far inside the deepest wood, away he wanders and despises nothing. His nest is under the rough grasses and the mosses of the mound, a mere tunnel beneath the fibres and matted surface. The hawthorn overhangs it, the fern grows by, red mice rustle past. It thunders, and the great oak trembles, the heavy rain drops through the treble roof of oak, and hawthorn, and fern. Under the arched branches the lightning plays along, swiftly to and fro, or seems to, like the swish of a whip, a yellowish-red against the green; a boom! a crackle as if a tree fell from the sky. The thick grasses are bowed, the white florets of the wild parsley are beaten down, the rain hurls itself, and suddenly a fierce blast tears the green oak leaves and whirls them out into the fields; but the humble-bee's home, under moss and matted fibres, remains uninjured. His house at the root of the king of trees, like a cave in the rock,

is safe. The storm passes and the sun comes out, the air is the sweeter and the richer for the rain, like verse with a rhyme; there will be more honey in the flowers. Humble he is, but wild; always in the field, the wood, always by the banks and thickets, always wild and humming to his flowers. Therefore I like the humble bee, being, at heart at least, for ever roaming among the woodlands, and the hills, and by the brooks.—RICHARD JEFFERIES (*Longman's Magazine*).

WASPS AND BEES.—The wasp is as much entitled to the epithet of 'busy' as is the bee. It does not store up a supply of food for the winter, because all the inhabitants of the nest will be dead before the winter has set in. But, not the less does it collect food for the sake of others, and the fruit which it eats it stores temporarily in its crop, and brings it home as food for the young. The life of our hornet, which is the largest of our wasps, is much like that of the ordinary wasp, except that the insect generally places its nest in a hollow tree, and is even more industrious, working not only by day but also by night, as long as the moon continues to shine. So that the hornet is even more 'busy' than the much-belauded bee. The popular idea that the wasp is a spiteful insect is without the least foundation. It never uses its sting except for defence, and moreover, it can, like the bee, recognise human beings and be on friendly terms with them. The late Mr. S. Stone lived in the society of wasps without being attacked by them. Mr. F. Smith also had wasp-nests at work in his room without suffering from them; while the story of Sir John Lubbock's tame wasp is too familiar to need repetition. Wasps often enter my house at meal times, and fly among us while they are hunting for food, which they can take back to the wasp-babies at home. We are not afraid of them, never fight them, and though we are a tolerably large family, none of us have been stung by our winged guests.—REV. J. G. WOOD, *in* '*Sunday Magazine*.'

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'THE EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

AN AMERICAN LADY BEE-KEEPER.—INTRODUCTORY.

[1959.] To the readers of the *British Bee Journal*.—I come among you a stranger, but with the kindest intentions, and hope that an acquaintance may spring up which may prove beneficial to all parties. If my great-grandmother did cherish feelings of ill-will against your country, and wanted to sweep your soldiers into the Atlantic with a brush of her broom, it is no reason why we should not be friends. We speak the same language, and believe in the same God, and our only difference is that we were transplanted across the Atlantic. I now make my salaam, and extend my right hand in token of friendship; as the little girl said, 'She laughed at me, and I laughed at her, and then we were acquainted.'

I was very much impressed with the greatness of Great Britain while attending the World's Fair at Philadelphia in 1876. I was up in one of the galleries of the main building, and, looking down, saw the exhibit of 'Great Britain and her Colonies.' It spoke well for a great nation. It seems strange to me that among so great a nation there are not many women who keep bees, and tell how they manage them; but in looking at a copy of the *British Bee Journal* I cannot find a line from any of them.

NEW YEAR'S DAY.—To-day many good resolutions will be made, and a new start in the journey of life taken. It is well for bee-keepers to review the past and lay plans for the future. If our bees have not paid, could we have made them do so? Last season was a very poor one for honey in this locality, owing to the severe droughts of the two previous seasons, destroying white clover. I could not have prevented this, but at one time during the season there was a big flow of honey from button bush, growing in the lowlands along the Illinois river, only a few miles distant. There were thousands of acres of it, and it bloomed for weeks, yielding a nice white honey. If the mountain could not come to Mahomet, he could go to it; it would have paid well to have taken my bees thither.

WINTER WORK IN THE APIARY.—I wanted to do something for my little pets on this first day of the year, so I have been down into their cellar and swept up their dead; the loss so far has been but trifling. The thermometer indicated 44 degrees. This cellar is 6 feet by 12, and has a sub-earth ventilator; in it are stored fifty-two colonies of bright, healthy, happy, and contented bees. Why should not they be, for they have pure air, good food, and warmth?

About the same number of colonies are passing the winter upon their summer stands, and are doing well. The season has been mild, and bees have frequent flights. Ice and coal men are despondent; no snow and but little rain. In sheltered nooks, when the sun shone upon the hives to-day, bees were upon the wing, and at 2 p.m. the thermometer hanging in the shade stood at 42 degrees.

HIVES.—The hive that I use and prefer is the eight-frame Langstroth's. I am not very strong, and I like a hive that is light and simple. Other hives may be just as good; I had a few ten-frame ones made, but I do not like them; they are heavier, and as they are larger it takes longer for the bees to fill them—consequently it is later in the season when they commence storing in the surplus boxes. Now is a good time to have hives made, and have them well painted, to be in readiness for another season. I have known many a swarm emigrate while their owner went to purchase a hive. There is nothing that adds so much to the pleasure and profit of bee-keeping as having everything in readiness when the busy season comes.—Mrs. L. HARRISON, *Peoria, Ill.*

[Mrs. L. Harrison has kindly promised to write for the *Journal* once a-month. Mrs. Harrison has been very successful with her bees, and her example, we trust, may induce many British ladies to follow her example. She credits bee-keeping with making life more enjoyable, opening up a new world, and making her more observant of fruits and flowers. Mrs. Harrison is well known as a writer for the press, and has been bee-editor of the *Prairie Farmer* since 1876, her writings being marked with much vigour and originality.—ED.]

A BIG BEE FARM.

'The most extensive bee-farm in the world is probably near Beeton, in Canada. It covers four acres, and the owner, in a favourable year, secures not less than 75,000 pounds of honey from his 19,000,000 little workers.'—*Newspaper paragraph.*

[1960.] I observe a paragraph in your last issue, under the above heading, stating that 'the most extensive bee-farm in the world is *probably* near Beeton (not Beeton) in Canada.' Now, I happen to know the owner pretty well, and though he is not averse to being puffed a little, I know he would at once decline the

honour you would thrust upon him. I may say that the reputed extent of ground, be it 'four acres' as in this case, or 100 acres, gives no idea of the real magnitude of a bee-farm, since the bees from even a single hive, occupying it may be a space under a square yard, have a range of pasturage in all directions to a distance of about five miles; and though 100 colonies were kept in the same yard, their united pasturage would be no more extensive. The true measure of extent in an apiary is the number of colonies kept. In Mr. D. A. Jones' apiary, at Beeton, there are only hundreds kept, while in others I know of there are thousands.

I have no doubt the most extensive bee-keeper in the world is Captain J. E. Hetherington, of Cherry Valley, New York. He owns about 3000 colonies, or stocks of bees, kept in fourteen different apiaries, from two to twelve miles distant from his home. The Captain does not appear anxious to publish results, but I should guess that in a favourable year each of his stocks would yield an average of 175 lbs., in all about 525,000 lbs.

The late Adam Grimm, of Jefferson, Illinois, was, in his day, the most extensive bee-keeper in the States, having about 1400 colonies, and clearing in one year from them ten thousand dollars. He died in 1876.

Mr. J. S. Harbison, of Old Mission Valley, San Diego, Cal., some years ago had as many as 3500 colonies, and is said to have consigned as much as 130 tons of honey at one shipment. He has latterly given more attention to fruit-culture, so that probably he is not now the most extensive bee-keeper in the world.

The above are but a few names among many who own more colonies than Mr. Jones. But I cannot close without mentioning another, whose remarkable story was given lately in the *Woman's Missionary Advocate* (Am.) Her name is Mrs. Sarah Axtell, of Roseville, Warren Co., Ill., and her portrait is before me as I write, that of a worn-looking invalid, for such she is. Eager to work in the cause of missions, she busied herself in such light handiwork as suited her, selling the proceeds for that end. In 1871 she began to keep bees 'for God,' and has, ever since they began to pay, forwarded the proceeds to the missions. Her stocks number over 200, and her yearly returns have, on some occasions, been marvellous. For instance, in 1882, from 180 colonies, 30,000 lbs. of honey were taken, and that year Mrs. Axtell was able to send to the American Board of Missions 'one thousand nine hundred and thirty-eight dollars and thirty-two cents.' In six years, up to the time the article referred to was written, she had sent in all 7500 dollars, equal to 1500*l*. Of course Mrs. A. has the help of a kind husband and of a girl, but she tells us that her own health has so much improved in the course of so much open air work that she is scarcely an invalid at all now. Such examples of devotedness are unhappily so rare that we think it well to publish them.

As to the number of *bees* in the Beeton apiary, given as nineteen millions, I have been asked how that can be made out. It has been proved that about 4500 bees weigh 1 lb. A good stock in summer is known to contain from 10 to 15 lbs. of bees—that is, a modern frame-hive properly worked. An average of, say, 12 lbs. would give over 50,000 workers to the hive, so that Mr. Jones' nineteen millions would be equal to some 400 stocks. Employing the same calculations, Captain Hetherington should have at one time a force of 150 millions of busy bees working for him.

The largest apiary in Scotland is, I believe, that of Mr. W. M'Nally, Glenluce, who owns abut 130 colonies. The pasturage in this country is too sparse, and the seasons too precarious, to warrant any one in going in for bee-keeping on the extensive scale they do in America. But we have in 'Scotch Heather Honey' the richest honey of the world; and as such will always be in demand, it may be worth while for those in favourable localities giving more attention to this growing pursuit. —William Raitt, *Beecroft, January 2nd* (*Blairgowrie Advertiser*).

[There is a melancholy interest attached to the above letter, which appeared in the *Blairgowrie Advertiser* of January 12. It is the latest contribution to the press from the pen of the lately-deceased Mr. William Raitt. He had desired to see a proof for the purpose of verifying his figures. But before he had the opportunity of returning it he had passed away.—Ed.]

COUNTY ASSOCIATIONS AND THE 'BRITISH.'

[1961.] I have just been reading over very carefully all the correspondence and articles which have appeared in your pages on the above subject since the October meeting up to this day (January 17th), and your leading article this week induces me to add one more letter.

There can be no doubt that the more intimate the connexion is between B.B.K.A. and the County Associations the better for all parties. The question is, What can be done to effect this? I cordially agree with my friend Mr. Griffin in all he said on December 24th (1929), especially as to lack of funds being at the bottom of all mischief—a cause which has, during three years of general depression, affected *all* Societies. It is my firm belief that *this* is at the bottom of any 'strained relations' that may be thought to exist between the B.B.K.A. and the affiliated Associations. The *former* cannot give us more liberal assistance *without a larger support*.

The Quarterly Conferences, to which each Association is expected to send a delegate, were instituted for the very purpose of securing intercommunion between B.B.K.A. and the County Associations; but, how have they been attended? It is rarely that even six counties are represented—often not more than three or four, and these (with a few notable exceptions) the *home* counties. How is this? *Not*, certainly, because the representatives take no interest in the work, but on account of the 'penny-wise-and-pound-foolish' policy of too many of the County Associations themselves in declining to pay the travelling expenses (to say nothing of the loss of time) of the delegates. It would be interesting to know how many of the discontented Associations do this.

This payment of travelling expenses by the Wilts B.K.A. accounts for my having only missed attendance at one Quarterly Meeting since our institution in July 1881 (and *that* one through serious illness), and I am convinced that if all counties did the same, there would always be such a large attendance of county representatives at the Quarterly Conferences as would greatly influence the courteous and able Committee of B.B.K.A. Several of our members have at times endeavoured to rescind this rule of ours of paying travelling expenses, but I have always resolutely declared my intention of resigning at once if this were done, being fully convinced of the importance and mutual advantage of the County Associations being represented at the Quarterly Conferences, so that the Committee may know what is wanted, in which case my own experience is (after eight years' regular attendance), that careful and courteous attention is invariably given to *all* recommendations.

All are anxious to know the result of the deliberations of the Sub-Committee appointed last October to consider the 'conditions of affiliation.' Had I been one of its members, I should have certainly suggested, as an addition to No. 4, after the words 'Shall elect two of its members . . . . . as representatives to attend the Quarterly Conferences of B.B.K.A.,' the words, *and shall pay the travelling expenses of one of them at each meeting*.

Then, but not before, might Mr. Bligh's suggestion in

his letter, January 30th (1938), of five members of the B.B.K.A. Committee being elected by the county representatives (if adopted), have a *practical result* which should satisfy everyone. I suppose those few County Associations (or their representatives) could afford the expense of a *monthly* attendance, even if the time occupied were no object; and so all honour and gratitude is due to those gentlemen who, at a great expenditure of time and money, have, during so many years, ably managed the affairs of B.B.K.A. *free of all costs* to the various Associations.

One word more. All who have attended the private meetings of the county representatives before the Conference in Jermyn Street, will, I think, join with me in thanking Mr. MacClure for having initiated them. I hope that all these discussions in the *Journal* will bear good fruit.—W. E. Burkitt, *Hon. Sec. and Delegate Wilts B.K.A., Buttermere Rectory, Hungerford, January 17th.*

SITUATION OF HIVES.

[1962.] On January 18th the temperature at noon in the open was 50°, with bees flying from every hive. So far all is well, and I have cause to be thankful, but the winter is to come yet, and then the spring, for

'In the spring a steady dwindling,
Is the thing we most detest;
In the spring the gentle bee-man
Cannot help but be depress'd.'

We have had no snow since the three inches of October 1st, the average temperature having been very even during the whole intervening time. That is not to the point. As a result then of this grand January flight, I observe that the bees

'Had better far have stayed at home,
Than ever to have roamed at all;'

for the number of chilled bees (or those trying to get chilled—bees distinctly appear to try their utmost in this way) on the ground at the front of each hive is simply appalling. One row of hives is arranged on two beams of wood on bricks, the total height of the hive entrance from the ground being just a foot; the alighting boards are six inches from front to back, and the whole width of hive in length. In front of each flight-board I have put a heap of clean cinders (breezes), clear of ash, in order that any bee alighting on this stuff, by accident or design, may by its warmth pull itself together and get home by a single spring. I regret to say these cinder hills have proven themselves veritable cinereal mounds, which will be found rich in 'finds' by the antiquarian aves and coleoptera of the near future, for they are just covered with dead bees, and all for want of a missing link connecting the hill-top with the edge of the flight-board.

From this painful experience I deduce that I ought to have heaped up the cinders until they reached the board. Slugs, snails, and other nasty creepers, could not possibly have mounted this heap; and as for mice they could get up to the entrance at any time under almost any circumstances. Other hives on legs, and one, in a shed, with the opening half-way up (without cinder-heaps), were quite free from chilled bees. Now the natural inference is, that as bees in a wild state have their home in a bank side, in a tree trunk, or in the face of a cliff, but always with a continuous alighting surface reaching from the entrance downwards (so that bees missing their aim may climb up home), an alighting-board should be extended to the ground in every case where hives are placed *near to the ground;* otherwise I think it were better to have no flight-board at all. *Per contra*, the further the flight-board is from the ground (where it cannot reach it) the better, so far as chilled bees are concerned. This is my past experience, confirmed this winter, and at this point the Cowan hive with its extensive flight-board comes further into prominence. As to the height from the ground, there is less moisture and mouldiness, more circulation of air, and dryness, 'sweetness and light,' when hives are placed at a reasonable height, than when squatted down on bricks or bare earth, where rot and mould doth corrupt. I would say from one and a half to two feet high should be the minimum with those hives having a jib-like projecting flight-board, but with such as may have the same continued to the ground six inches to one foot. Dryness is a *sine qui non*, and cannot be obtained on the surface of the ground.—R. A. H. Grimshaw.

A REAL ORIGINAL.

A BRIEF SKETCH OF HER DOINGS AMONGST BEES.

[1963.] We occasionally have had the pleasure of reading in the *Journal* some very interesting accounts of small apiaries worked on what we style a primitive system of bee-keeping. I hope, therefore, no apology is needed if I give a short account of such on a large scale that has recently come under my notice, one which I think may, in the present day, be considered a rarity; the complete uniqueness of which can only be fully appreciated by a visit to the spot, and procuring an interview with the aged owner of seventy-nine stocks of bees (*pure natives*), all in straw skeps, save one, which is in a tub. This may be accomplished if tact and discretion be exercised, not otherwise; but when once admitted, and it is found that the object of your visit is honestly intended, the veil is withdrawn, save the touch-not and handle-not, a little trial, perhaps, to those of us who are fond of handling. I must confess it was to myself, as I thought what a grand opportunity here offers me for testing how bees in their natural habits will build their combs, and so to have been able to place the facts before you, Mr. Editor, Mr. 'Useful Hints,' and others. Such might possibly have induced further thought, and to some advantage.

To give, then, a short history of this extensive, primitive bee-garden, which I discovered in as primitive a village in Lincolnshire, and owned by an equally primitive bee-keeper, I must take your readers to my first introduction to it in May last. Whilst staying in this little village I inquired, as is usual with one who is going about, if there were any bee-keepers in the village. Being informed of three only, I made my call and asked after the bees, of course. On introducing myself to the lady, the subject of this sketch, and with the customary salutation, 'Good day, Mrs. W., hope you are well,' I was favoured with a smile and a reply,

'Yes, sir, I am; thank you.'

'How are your bees doing, Mrs. W.?'

'I hardly know, the weather is against them.'

'Yes, it is very much against bees thus far this season, but we must wait patiently for a favourable change. I see you have a large number of hives.'

'Yes, sir, I have.'

'Are they all stocked?'

'Yes, sir, I believe they are.'

'Why, how many stocks have you?'

'I can't tell you, sir, I don't bear it in mind. You'll excuse me, sir, but I hope you're not going about the country to get information about bees, and then make us pay a duty on our bees.'

'Oh dear no, Mrs. W., I am one who is greatly interested in bees and bee-keeping, and whenever I meet with a bee-keeper, I like, when I can, to have a chat, and try to learn all I can.'

'Well, sir, you'll not learn a deal from me.'

I was afraid I might find those words true. I had gained but little up to this. Looking wistfully over the gate into the garden, I remarked, 'What a pretty sight to see such a garden so busy with bees!'

That brought out a smile and a reply, 'Do you think so, sir?'

'Yes, indeed, I do, Mrs. W. Will you allow me to walk round?'

'I've no particular objection, sir; but I don't have folks going about among my bees, and never let anybody touch 'um; it don't do.'

Having got inside the gate, and put my hands in my pockets as a signal of my non-intention to meddle, I was trotted round sharply, trying to get a little talk as we went, and keeping count of the number of stocks.

'Why, Mrs. W., you must have nearly eighty stocks.'

'Maybe there be, sir.'

'And they all appear to be doing well.'

'I hope they do, sir.'

'Don't you really know how many stocks you have?'

'Well, sir, I should know if one was took away, I guess. You'll excuse me, sir, but it's my dinner-time, so I wish you good morning, sir.'

'Good morning, Mrs. W., and thank you very much for allowing me to have a look over your garden, stocked so full of bees: it's been a great treat.'

'Not much of a treat, I should think, to you. Good morning.'

'Good morning, Mrs. W., I must give you another call.'

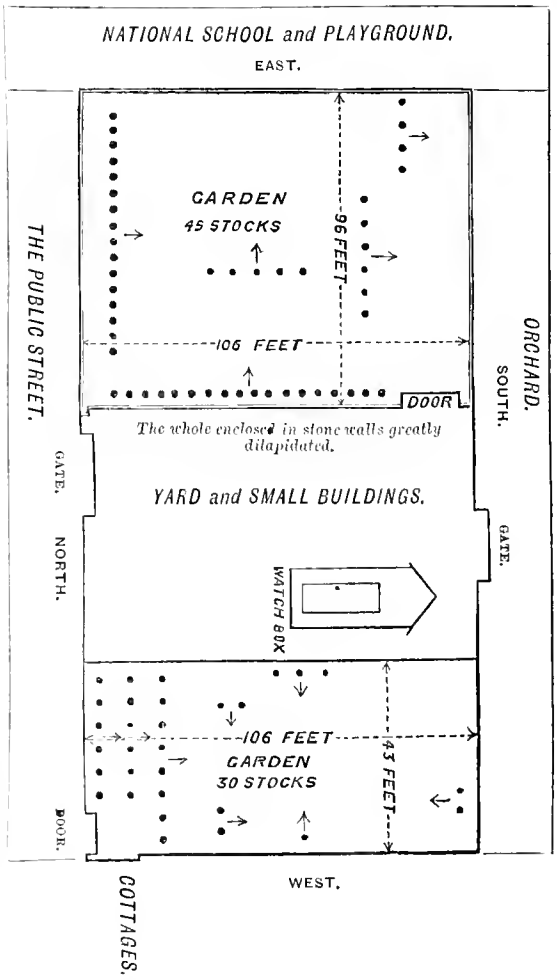
'Very well, sir, if you think well.'

Here I parted with my friend, who is a fine, hale, hearty old lady, a widow, too. I wish I could enclose her photograph; her exact age has been confided to me, but I must not divulge, that would not be polite, especially in this case of a widow, but I may say she has passed some steps beyond the allotted span, her years nearing up to her number of stocks of bees.

Anxious to know something more about the management of this big lot of bees, I took the first opportunity of making another call, when I was allowed again to walk round the garden, and alone this time, which afforded me an excellent chance to have a good scan at the stocks. So far as I could judge from outside appearances all were in a fair working stage, and many were very strong, the greater number in large size skeps, few only in the common little skeps, those that were had ekes of various contrivances, some formed by bricks, rims of cheese-boxes, &c., all were well cared for in the way of coverings of the most varied descriptions, and all hives well mortared round bottom; the greater number stand simply on slabs of stone or plaster, and separately, few only have a proper floor-board, each hive entrance is protected by a piece of zinc or lead with a small ∧ cut large enough for two or three bees to pass in and out; these are lifted up in front as the season advances, and fastened to the hive, in readiness at any time, as needed; no large entrances allowed in this apiary; many of the more recent hives introduced have large openings at top for supering, but the bulk of honey taken at the close of the season is, unfortunately, by the cruel old practice. The position of the hives, as may be gathered from the accompanying rough plan of the garden, stand almost to all points, and there appears to be but little, if any, difference in the strength of one stock to another. Not much thought is given to position so long as plenty of swarms are got to set up. In the yard dividing the gardens is placed a little watch-box, in which the old lady sits ready for action, and during the swarming season she seldom leaves it, not even for meals, in fact, it is not uncommon for her to be with her bees up to midnight, and again at three o'clock; it may be truly said she almost lives amongst her bees, and alone too, as she declines any offer of assistance unless it be to run after a truant swarm or a high ladder job.

On returning from the garden I was very politely invited into the cottage, which stands close by, and, getting seated, was asked to take a glass of wine. Here, then, was my chance of learning a bit more, and I was soon busy at it, first remembering to proffer my best thanks for the privilege of having had so grand a treat amongst the bees, and the opportunity of learning so much. Here I was met with,

'You won't larn much from me; I'm one of the old-fashioned sort of bee-keepers. Maybe I may larn something from you, you seem to know a lot; you're not like a man I was talking to a bit back, he talked as if he know'd all about this, that, and t'other, but I could soon tell he didn't know so very much about bees, and he darn't go among um unless he was covered up, and



when I asked him how many stocks he had, he told me two, but had had three and lost one; that made me smile, his telling me he had lost one out of three stocks. If I lost one in ten I should begin to think I was on the road to be ruined: but then you know, sir, I ought to tell you this man keeps his bees in your new sort of a way, not in straw hives like mine.'

'Then you have never tried the frame-hive, Mrs. W.?'

'No, and I don't think I shall begin now, I'm much too old; but maybe I should do as well as some do if I tried my hand.'

'I have very little doubt about that, Mrs. W., if once you tried. I shall expect one day to find you giving the frame-hive a trial, one would look well amongst your large lot of skeps.'

'I don't know so much about that, sir; my bees cost me ever so much as it is, without my spending more money still on them expensive sort of hive. About how much do them hives cost, sir?'

'Oh, only about ten shillings for a good one.'

'Ten shillings, do they? Oh, look what a lot of honey I must sell at the price these days to make up ten shillings.'

'You might sell swarms, Mrs. W., as you have plenty of stocks.'

'I never sell my bees, sir.'

'I think you might do worse, Mrs. W.'

'Perhaps so, but I have no faith in selling bees. Excuse my interrupting you; now if I was to make up my mind to sell some swarms, what might be about the price?'

'Oh, about 2*s.* 6*d.* per pound.'

'What, sir! sell bees by the pound? How could I do it? I couldn't weigh bees; I never heard of such a thing before, and I've known a good deal in my time. Weigh bees; no, I won't bother in that way, if I sold at all I should sell the swarm as it came, and a good swarm now should fetch 12*s.* or 15*s.*, but I don't care to sell bees; you'll think I have curious notions, and so I have.'

'Yes, Mrs. W., bee-keepers do have curious notions, —very curious often, so you are not alone: I could tire you in relating such as have come under my notice.'

'No doubt you could, sir, I quite believe it, as you go about a deal, and must come across all sorts. Have you ever heard that it's a bad sign when swarms settle on a dead fence or any dead tree?'

'Yes, I have, Mrs. W., but I take no notice of it, as I don't believe in suchlike fancies.'

'Well, sir, whether you believe or not, I can tell you that in the season as my husband died, the following autumn all my swarms settled on dead fences, and posts, and dead branches, like you in that orchard, and I don't think a swarm that year settled on a green tree. I always remember it, and I remember a person as had five stocks, and he died, and they didn't tell the bees about it, and every stock died.'

'It's all fudge, Mrs. W.; don't believe in suchlike stories. If you do, be sure you take care to give full instruction to those you leave behind in charge of your lot, or there might be an awful slaughter.'

'Well, you know, sir, I do often think what would become of all them lot of bees and hives.'

'Just so, Mrs. W., no doubt you do. We won't dwell upon that subject. I want to ask you a few other particulars, but I must not trespass longer upon your time now. I will call in again as I pass to-morrow, perhaps you will have had a swarm to tell me about.'

'I hope I may, but they are very backward this year; but swarm or no swarm, I shall be glad to see you, sir.'

'Thank you. Good day, Mrs. W.'

'Good day, sir, if you're going.'—R. R. Godfrey.

(*To be continued.*)

SUGGESTIONS AS TO MANAGEMENT IN THE PRESENT YEAR.

[1964.] With the commencement of the new year our thoughts are naturally turned to the coming season; and it must be so if our bees are to bring us either pleasure or profit. The failures of the past two seasons—and who has not either experienced or heard of them?—should have a stimulating effect on those who failed, and the record of the failures, with their causes, should act as a warning to beginners. Feeding, which is correctly described as the 'lever to successful bee-keeping,' has been the means, to my knowledge, of bringing success to those who have practised it judiciously, and have been favourably situated with regard to honey-producing plants, even during the past two seasons.

Amongst cottagers I have found it a practice, in some cases, to take up in the autumn *the heaviest and the lightest* of their stocks, irrespective of the state of the colony from other points of view, or the age of the queen; while in other cases none but *the heaviest are left*. In neither of these cases will the owner, as a rule, resort to feeding. The eyes of both classes (No. 1 and No. 2 I will term them) respectively were opened by the season of 1887, for while No. 1 had been in the habit of doing fairly well, and No. 2 badly, the results were reversed in 1887; and why? The explanation of this reversal of fortune, and the general want of success on the part of cottagers and amateurs, is very simple and may be acceptable.

Starting with 1887 the stocks of No. 1, having only a moderate supply of food, will have plenty of empty cells in which the queen may lay her eggs in the spring; and the supply of food in the hive, added to what is coming in, during an early and favourable spring allows (if the queen is a good one) of the increase of brood and the subsequent increase of the stock, which will be ready to take advantage of the honey flow when it comes.

The stocks of No. 2, being left almost full of honey the preceding autumn, are found to increase slowly in the spring because the cells which the queen should be occupying with eggs are not yet relieved of their honey, and consequently the stock only increases as the honey, stored the previous season, is consumed in the production of brood, so that such stocks usually become strong just too late in the season, and hence a loss instead of a gain to the bee-keeper.

(Here, in cases like the latter, the advanced bee-keeper, with his frames and extractor, gains a decided advantage.)

Now, in 1887, the stocks of No. 1 consumed their food early in the year, and, unless fed, were almost, and in some cases quite, ruined by the time the honey flow came, hence no surplus; while the stocks of No. 2 were, during the long unfavourable spring, slowly consuming their abundance of honey in increasing the population. These latter, and all in a similar condition by feeding, were therefore the stocks that gave the surplus, because when the opportunity presented itself they were prepared with plenty of brood and a strong colony.

Now, my intention in writing this letter is to endeavour to draw the attention of cottagers and amateurs to the necessity for a little more common sense in the general management of their bees, and particularly in feeding.

I fear it is too well known that cottagers' stocks, if they are not fed up in autumn, will be in an impoverished condition at the present time; and if attention is not given quickly and continuously as long as it is necessary, they will be weak and almost useless during the coming season. And then, of course, if this advice you, Mr. Editor, so often give, is not acted upon, we shall hear the cry again, 'Bees don't pay.'

In giving syrup in the spring, care must be taken that it is given slowly or in moderate quantity. If syrup be given in large quantities, it is taken down by the bees and stored in the cells, and thus, instead of helping on the increase of the colony, the cells, filled with syrup, are not available for the eggs of the queen, and the colony is placed in an almost similar condition to the stocks put into winter quarters with too much food.

If stocks are at the present time at starvation point, half a pint or a pint of warm syrup should be given on the first warm day about noon, when the bees are having a flight. The entrances should be narrowed, and no syrup should be spilt, neither should any crack or crevice be left to give other stocks a smell of the treat being given to their needy neighbours. The syrup should be given so that it can be taken down quickly, and then a good cake of soft, warm candy should take the place of the bottle in the evening, and if the bees

are well packed, they will have food to last until other warm days appear, or continuous syrup feeding may be resorted to, full instructions for which may always be found under the heading, 'Useful Hints.'

Many bee-keepers will no doubt be making a fresh start this season, while others will, for the first time, be taking up bee-keeping for pleasure or profit, and it is for their benefit that I now make a few remarks about hives.

As I have before stated, I am convinced that we err in advising cottagers and beginners to start with bar-frame hives. A great percentage of those who start thus fail, and among amateurs, those who are worthy of the name of bee-keepers are a very small proportion of the great number of bee-keepers it has been my pleasure to come in contact with. By all means let us give them to understand that our ultimate aim is to make them expert in the management of their bees in bar-frame hives, but do not let us, as is so often done, recommend bar-frame hives directly we begin to get cottagers and others interested in modern methods of bee-keeping.

If evidence were wanted that the fixed-comb system was still in great favour, it is only necessary to find out the numbers of skeps supplied; and that there is still a large demand is evident from the fact that they are still advertised by all appliance manufacturers.

I have yet to be convinced that the moveable-comb system is an advance on the fixed-comb system in the hands of the cottagers. Of course I do not mean to say that I recommend the senseless and disgusting system still in vogue in many rural districts, but I do advocate the keeping of bees in skeps on the system detailed in the first number of the *Bee-keepers' Advertiser*, or in boxes, upon which may be placed sectional supers. Bee-keeping under those systems is simpler, more pleasurable, and more profitable than when there are frames to get out of order, and crevices to fill around crates (which do not always get filled), to prevent the loss of heat, or the bees from storing in the roof of the hive. When a wooden hive on the fixed-comb principle can be offered to the cottager or beginner at very little increase on the price of a skep, I think we are not justified in recommending a start with more intricate and more expensive appliances. With permission of the editor, I shall refer again to the subject of cottagers' hives.—C. N. White, *Somersham, Hunts, January 10th.*

TO DESTROY TITS AND WASPS.

[1965.] The blue tit, which is very destructive to bees, is easily taken by a small spring trap baited with a piece of gristle or meat; the spring trap I mean is procured at the ironmonger's, some 4*d.* to 6*d.* each. Last winter I got forty that came to my hives. If you take half a gill of paraffin oil and dash it into the hole of a wasp's nest at night, and cover tight with a sod, it will kill the whole nest; night being best, as all are in.—J. B. R.

EXCLUDER ZINC.

[1966.] This being a dull season of the year with regard to bees, and as it is a favourable time to discuss any subject of interest to bee-keepers in general, I should like the opinion of some of your numerous readers with regard to the use of excluder zinc. I take the *Adviser*, and I might say I purchase the *B.B.J.* every time I pass a Smith's bookstall. I notice a lot of things in both papers that I think are fads, although there is a lot of very useful information. I once, before I kept bees, was assisting an old bee-master to take off some sections; a lot of those sections had bee-bread in them, and he remarked, 'This is the result of idleness in not putting on excluder zinc; and I have also heard him say since then that sometimes they will not go through it to work. In the *B.B.J.* of May 10, 1888, in 'Useful Hints' Olla Podrida, I take it to be in favour of the slotted excluder. Same paper, in 'Notices to Correspondents,' in reply to 'H. J. S.,' 'I. *Excluder zinc.*—We have long since discontinued the employing of excluder zinc, as we have found that it interfered with the work of the bees, and that we always got much more honey without its use than with it.' In the *Adviser*, July, 1888, there is a new fad: Raynor's excluding honey boards, and a description of them. No. 50, Mr. 'R.,' speaks in favour of them in the latter part of his letter, where he says, 'I may add that I obtained sections last season worked on these honey-boards better in quality, brightness, and colour than any I had previously obtained without the use of the queen-excluding honey-boards. In the *Adviser*, August, 1888, No. 87, a letter signed 'H. O., Dundalk, Ireland,' he condemns the use of excluding adaptors. Also in same paper, in 'Notices to Correspondents,' in reply to 'A. Everett,' 'We never use it, although there is a growing tendency to do so when using any other but sectional supers.' Now, sir, as an amateur, it is difficult to sift the wheat from the chaff. I last season purchased a whole sheet of excluder zinc, and tried it on a couple of hives, but it did not work; I put it down to the season, I also put it behind the eighth frame, so as to keep the bees from putting bee bread into the last four frames. I might say that my hives have twelve standard frames, and the tops hold eighteen 2-lb. sections. I work for sections, and I should like to see the opinion of some who have tried it before the season comes in. I have been advised to put it right on the top of the frames, then again I have been advised to put it in the section crate so as to allow the bees a free passage between frames and crate. I hope from the answers to this, my first letter, that I shall receive good information as to whether it is of use or not.—J. B. R.

WASPS.

[1967.] Having charge of a fruit-farm, I was much troubled in the autumn of 1887 by the depredations of wasps, which had strong colonies in two or three places among the fruit-trees and in a sunk rose-bed (old pond), and attacked mostly the Bergamot pears and Washington plums. We destroyed the nests in question, and the labourers, for a reward of 3*d.* a nest, were careful when digging and hoeing the following winter and spring months to unearth all the nests they could—about eight—whilst I killed all the queens that entered the house, or flew with the bees about the berberis-bushes. The heavy rain must have destroyed most of the others, as well as the multitudes of caterpillars, though I killed a few at the entrances of bar-frames and other bee-hives. Taking an old bee-house into the barn the other day for alteration, repair, and painting, I found inside in the highest part two of the spheres of the usual burnt-paper consistency, and with the usual cells in their bases. These were just like those of the wasps, but I am not acquainted with hornets' nests. No wasps were visible about the fruit last autumn.—M. H. R., *West Sussex.*

A SUGGESTION FOR CONSIDERATION AT OUR SHOWS.

[1968.] As one of the objects of the B.B.K.A. is educational, it has struck me that much may be done in this way at our shows. I have seen a book published entitled *Enquire Within upon Everything.* Could there not be in connexion with the Secretary's office at our large Shows an 'Office of Inquiry,' where bee-keepers amongst the large numbers that frequent our Shows could go and obtain advice and instruction in bee matters? I think at the busiest time of the day—say from 3 to 6 p.m.—amongst the many experienced bee-

keepers present there would be no difficulty in getting gentlemeu who would devote one or two hours of their time to that purpose, to be relieved by others.

There are many persons who would like to consult the sages about their bees, who do not like to put questions in the tent, amongst a large gathering of the public. I think also it would tend to make the bee-tent and bee shows more of a rendezvous for the fraternity, where they could exchange their views and become acquainted with each other. Also, has there ever been in connexion with our exhibitions any attempt to bring together goods manufactured from wax, and its various uses? What a display some of the wax-flower makers would make for a small prize, and how readily some of our candle-manufacturers would contribute for the sake of reputation!—J. B., *Lewannick, Launceston.*

Echoes from the Hives.

North Leicestershire.—On Thursday, Jan. 17th, and two following days, bees were pretty well all on the wing after a very close imprisonment of exactly six weeks. They were looking well, and showed not the slightest symptoms of distress, their rigid confinement notwithstanding. The skeppists who refused or neglected to feed up in autumn now see their folly, for in many cases their bees are all dead.—E. B.

Honey Cott, Weston, Leamington, 21st January.—19th December was a nice change; bees flying very much, and carrying dead bees. 22nd December, very sunshiny, though the sky looked rather stormy. Bees again on the wing very much. On Christmas day, too, they were out again. After this cold weather came on again, we had very sharp white frosts, and bees did not show themselves except one or two occasionally till about 15th and 16th of January; they were then out a bit, and on looking around at the entrances, I noticed something like a dead drone or two at one of the entrances, and when I came to examine them, I found they were drones, so I said to myself, 'Oh, oh! sure enough you did not get mated this autumn,' meaning the queen, of course. I very well remember this same hive in September. They had raised a young queen, and I had examined them several times to see if she was laying, but never saw any eggs, but as she looked rather fat, I thought she was all right. I had not time to examine the hive the same day I noticed the drones, so next day I took a look into the hive, and found a patch of drone-brood as large as my hand, and there were young drones that were hatched out too, so I just found the queen and pinched her in two, and covered them up till dusk, and then uncovered them and put a little syrup on the frames, and lifted another small stock on top of them. (Here I may say that before I uncovered them at night there was a fine hubbub about the loss of the queen that I had killed.) In less than ten minutes they were as quiet as possible, so I let them stay a day or two as they were, one on top of the other, and then put them into one hive, and on looking the combs over I saw the queen was all right. I thought it was not worth while to let them go on with a drone-laying queen till all the bees had got old and useless. On the 18th and 19th I looked over stocks, and as the bees were flying in great numbers I thought I would look on tops of frames, and give some candy cake to those that appeared to be getting rather short, for fear, if it should come on bad weather, some of them might run short.—JOHN WALTON.

NOTICES TO CORRESPONDENTS & INQUIRERS.

C. B. K.—Messrs. Dines, Maldon, Essex.

W. J. S.—*A New Hive.*—We would suggest that your hive, or a model of it, should be forwarded to one of the Quarterly Conversaziones of the B.B.K.A. You should be present to explain any of its new features; or, failing to be able to attend, a paper might be sent giving a minute description of it. It would, on such an occasion, have the benefit of the criticism of the bee-keepers then present.

O.—*Improving Strain of Bees.*—We would recommend a pure Carniolan queen to be introduced in spring. The bees sent are fair specimens of English black bees.

J. KEARLEY.—We have had no experience of Professor McClain's treatment of weak stocks; but from the high name he bears among American bee-keepers, we are inclined to say that his method is worth trial.

Business Directory.

HIVES AND OTHER APPLIANCES.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin
APPLETON, H. M., 256A Hotwell Road, Bristol.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
BURTT, E. J., Stroud Road, Gloucester.
EDEY & SON, St. Neots.
GODMAN, A., St. Albans.
HOWARD, J. H., Holme, Peterborough.
HUTCHINGS, A. F., St. Mary Cray, Kent.
MEADHAM, M., Huntington, Hereford.
MEADOWS, W. P., Syston, Leicester.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
STOTHARD, G., Welwyn, Herts.
WALTON, E. C., 82 Emmanuel Street, Preston.
WEBSTER, W. B., Binfield, Berks.
WOODLEY & FLOOD, 26 Donnington Road, Reading.
WREN & SON, 139 High Street, Lowestoft.

HONEY MERCHANTS.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
BALDWIN, S. J., Bromley, Kent.
EDEY & SONS, St. Neots.
HOWARD, J. H., Holme, Peterborough.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.

FOREIGN BEES AND QUEENS.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
BENTON, F., Laibach, Carniola, Austria.
EDEY & SONS, St. Neots.
HOWARD, J. H., Holme, Peterborough.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.

METAL ENDS.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
EDEY & SONS, St. Neots.
GODMAN, A., St. Albans.
MEADOWS, W. P., Syston, Leicester.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.

COMB FOUNDATION.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
EDEY & SONS, St. Neots.
HOWARD, J. H., Holme, Peterborough.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
STOTHARD, G., Welwyn, Herts.

COMB FOUNDATION MILLS.

GODMAN, A., St. Albans.

HONEY GLASS MERCHANTS.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
BLOW, T. B., Welwyn, Herts.
PEARSON, F., Stockton Heath, Warrington.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

WINDSOR MEETING, 1889.

Commencing MONDAY, JUNE 24th, and closing SATURDAY, JUNE 29th.

PRIZE LIST FOR HIVES, HONEY, &c.

Exhibits in Classes 1, 3, 4, 5, 6, 7, 8, 9, 10, 11 (sections excepted), must be manufactured by the Exhibitor. Exhibits in Class 1 and in Class 19 to be staged and repacked by the Exhibitor.

CLASS 1.—For the best collection of Hives and Appliances, to consist of the following articles:—One Frame-hive, priced at 15*s.*; one ditto, priced at 10*s.* (*Note.*—These Hives must be fitted with arrangements for Storifying.) One Observatory Hive; one Hive of Straw or other material, not entirely of wood, for obtaining either Comb or Extracted Honey; one pair of Section Crates fitted with Sections; one Extractor, one slow stimulating Feeder, one rapid Feeder; one Smoker or other Instrument for quieting Bees; one Veil, one Swarm Box for travelling, capable of being used as a Nucleus Hive; one Travelling Crate for Comb Honey; five other distinct articles not specified at the discretion of the Exhibitor. Each article to be priced separately. No articles must be added to the collection, nor any portion of the Exhibit removed during the Show. First Prize, 40*s.*; second Prize, 30*s.*

CLASS 2.—For the best Observatory Hive stocked with Foreign Bees and Queen. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 3.—For the best and most complete Frame-hive for general use, unpainted. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 4.—For the best and most complete Frame-hive for general use. The Hive shall consist of (1) a Floor-board on four short legs; two Chambers or Body-boxes, equal in size, similar and interchangeable, both to have porches, with entrances not less than 12 in. wide, that can be contracted at pleasure, each chamber to be capable of holding at least ten Standard Frames, but only one set of Frames with strips of foundation fixed and two division-boards to be supplied. (2) One Case of $4\frac{1}{4}$ by $4\frac{1}{4}$ Sections, with foundation fixed and separators, of such size as to admit of its being placed inside the chamber. (3) A substantial Roof, sufficiently deep to cover a case of sections and afford ample protection to the whole Hive, the price of each part, namely, stand and floor-board, body-box, case of sections, and roof, to be given separately, the whole not to exceed 15*s.*, unpainted. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 5.—For the best and most complete Frame Hive for general uses. The Hive shall consist of (1) one Chamber or body-box, containing ten Standard Frames having strips of foundation fixed, two division boards, entrance porch, and floor-board, the chamber capable of being used with a second of the same pattern. (2) One Case of twenty-one Sections, $4\frac{1}{4}$ by $4\frac{1}{4}$, with foundation fixed and separators. (3) A Roof sufficiently deep to cover one case of sections at least, the price of each part, namely, floor-board, body-box, case of sections, and roof to be given separately, the whole not to exceed 10*s.* 6*d.*, unpainted. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 6.—For the best Honey Extractor, price to be taken into consideration. First Prize, 15*s.*; second Prize, 10*s.*

CLASS 7.—For the best Honey Extractor, price not to exceed 12*s.* 6*d.* First Prize, 15*s.*; second Prize, 10*s.*

CLASS 8.—For the best pair of Section Racks, completely fitted for use and interchangeable, price not to exceed 3*s.* 6*d.* each. First Prize, 15*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 9.—For the best Feeder for slow stimulating feeding. First Prize, 10*s.*; second Prize, 5*s.*

CLASS 10.—For the best Feeder for quick autumn feeding, capable of holding at least 5 lbs. of food at a time. First Prize, 10*s.*; second Prize, 5*s.*

CLASS 11.—For the best Smoker. First prize, 10*s.* second Prize, 5*s.*

CLASS 12.—For Useful Inventions introduced since 1887. Special Prizes according to merit.

CLASS 13.—For the best 12 Sections of Comb Honey, the gross weight to approximate 24 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 14.—For the best 12 Sections of Comb Honey, the gross weight to approximate 12 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 15.—For the best 6 Sections of Comb Honey, the gross weight to approximate 6 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 16.—For the best Exhibit of Run or Extracted Honey in jars, not exceeding 2 lbs. each, the gross weight to approximate 24 lbs. First Prize, 30*s.*; second Prize, 20*s.*; third Prize, 10*s.*; fourth Prize, 5*s.*

CLASS 17.—For the best Exhibit of Heather Honey (Comb or Extracted), the gross weight to approximate 12 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 18.—For the best Exhibit of Granulated Honey in jars, not exceeding 2 lbs. each, the gross weight to approximate 12 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 19.—For the best Exhibit of Comb and Extracted Honey, in any form, staged on space 4 ft. by 4 ft., height not to exceed 5 ft. above the table. The gross weight of each kind to be stated. First Prize, 60*s.*; second Prize, 40*s.*; third Prize, 20*s.*

The Exhibits in this class to be staged by the Exhibitor.

[A Silver Medal, independently of Money Prizes, will be given for the Exhibit most tastefully arranged.]

CLASS 20.—For the best plan and design for an Apiary of 50 Hives on two or more acres of land, to include a suitable building for extracting and general work. The design to show arrangements for growing Honey- and Pollen-producing plants, attention being given to the value of the crops for other purposes. First Prize, 40*s.* and Silver Medal; second Prize, 20*s.* and Bronze Medal.

CLASS 21.—For the best Diagrams suitable for a Lecture on Bee-keeping, or Technical Lessons in Rural Schools. First Prize, 40*s.* and Silver Medal; second Prize, 20*s.* and Bronze Medal.

CLASS 22.—For the most interesting and instructive Exhibit of any kind connected with Bee-culture not mentioned in the foregoing Classes. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

The Council reserve to themselves the right to publish for Educational purposes any Exhibit entered in Class 20 and 21.

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Editorial, Notices, &c.

ARTIFICIAL HEAT AS APPLIED TO BEES.

Dangerous ground is this for the novice to trespass upon without some reliable guide to go by. It may be asked, If plants benefit so much by it, why should not bees, that depend so greatly upon warmth for their existence and power to work?

But it must be remembered that plants are stationary, and are never changed directly from a hot chamber to the cold outer air. What would be the use of warming up a stock of bees in winter, when there is nothing for them to do outside? as they will certainly fly if once roused to undue activity, while the loss of life would be simply enormous. Better far let them rest in that condition of semi-hibernation, or perfect rest, so essential for their well-being at this season, and conservation of power, in readiness for the busy time to come.

Doubtless there are many who give the subject of artificial heat their serious consideration, but the 'how and when' to apply it have been the stumbling-blocks lying in the road of not a few who have attempted it. For the sake of experiment we have had bees breeding and flying freely (in a greenhouse) in mid-winter; carrying in artificial pollen as merrily as the natural article is loaded home in summer; but such bees have been of little use during the ensuing season.

Protection at all times is, of course, absolutely necessary; and as a matter of fact artificial heat, applied at the right time and in an economical manner, *must* be of benefit to the bees, and bring greater profit to the master. We have already stated that it is useless to warm up the hive while outside it is still winter; neither would it be of any advantage in autumn after the season is past, and bees should be preparing for rest; but a partial application by the means of heated bricks or hot-water bottles, placed over the supers at night or during cool days, will give results that handsomely repay for all the trouble taken.

We have yet to consider the means that will force on the brood-nest at the earliest possible date, and thus ensure that the bees will be more than ready for the supers, with the first honey-flow, however early it may come. To do this, let heat be applied to the stock hive not earlier than the beginning of March, just as the bees are being roused into activity by the returning warmth of the sun. The most simple and really inexpensive way is to place new stable manure around the hives in sufficient quantity to heat, leaving the front partly uncovered, that the entrance is not smothered; or a tunnel may be arranged before it. By this means we have had stocks working freely in the supers at the end of April, while others not so treated were a full month behind.

The one disadvantage is, that the moist heat will destroy the paint and rot the wood of the hive, but to some extent this can be avoided by placing slates around the hive before putting on the manure. However, the best result can only be obtained when the straw is packed close to the body of the hive, and we have seriously considered the advisability of having a stand built of bricks that will also do for the forcing hive for the two or three months previous to the honey season. It is possible such a hive would be best for all seasons, being cool in summer and warm in winter, especially as in the latter season the earth can be thrown up around it for greater protection. Cost is by no means a serious item, but the weight of such hives is where we have seen a difficulty.

Our experiments have shown us conclusively that artificial heat should be a great factor in the management of our bees; but, as we have endeavoured to show, it may be applied only at just the right time, or, instead of the greatest good, only harm will follow.

The manure always has a further use, but where hot-water pipes are already in use, and the situation is convenient, it is possible that another set of pipes could be arranged to heat a number of hives at very little additional cost for the few months it would be needed; but whether it will ever pay to arrange a complete apparatus expressly for a large number of bees we must leave the future to decide. We do know, however, that often during an otherwise good flow of honey, the nights are so cool that not half the work is done at comb-building that is desirable, while if the hive could then be kept as warm as during the day, the ripening process would go on more rapidly, and more cell-room be ready for the next day's gathering, which would be an increased quantity, seeing so many more labourers are then at liberty to forage, and every advantage is taken of 'present opportunities.'

USEFUL HINTS.

Weather.—During the last fortnight the weather has been mild and damp, with frequent mists, and an almost total absence of sunshine. Saturday, the 19th inst., was, however, an exception—a day of bright sunshine, the thermometer standing at 50° in the open air, and the bees flying freely—the first flight ours had enjoyed for six weeks at least.

Early Bee Flights.—As an earnest of the coming spring it was pleasant to hear the murmuring hum and to witness the busy work of our bees in carrying out refuse and dead bees from the hives, which is always the first spring work, except, perhaps, a little robbing.

Chilled Bees.—After a severe frost, if only lasting a few days, the outside bees of the cluster become chilled, and, falling on the floor-board, unable to regain their position, thus perish.

This is more often the case when a frost sets in suddenly after bright, warm weather, and these dead bees, when lying beneath the alighting-board, having been carried out on the first warm day, are often mistaken for bees which, having been chilled during the flight, were unable to reach the hive. Bees, too, after long confinement, when attempting a feeble flight with swollen abdomen, fall and perish, but in these early flights few healthy bees perish from chill, since they are careful to remain at home until the temperature and sunshine entice them forth. After a long continuance of damp and fog, colder and more bracing weather, even a sharp frost for a time, would be conducive to the health of man and bees.

Brood Chambers.—In the restricted brood-chambers described in our last 'Hints' (p. 27) the distance of frames from centre to centre, instead of $1\frac{1}{2}$ inch, would be better if kept at $1\frac{1}{4}$, or at most at $1\frac{3}{8}$ inch, which may readily be effected by the use of the 'Carr metal ends.' Since the chamber is limited to worker-brood solely, combs I inch thick will be sufficiently wide, and a clear space of a quarter of an inch, or $\frac{3}{8}$ inch, between the brood-combs, will be enough for all the purposes of brooding and nursing bees.

The circular or globular form of the cluster, preferred by the bees, is no doubt the best, but the ten-frame British Standard hive, which is about 15 inches square by 9 inches deep, does not fully allow of this shape at all times. In this hive bees winter well by enlarging and diminishing the diameter of the cluster according to the temperature, but free bee-passage through, or above, the combs must be provided. Such a hive, stocked with a colony of average strength, will require no contraction by division-boards for wintering.

But for summer work with this hive, in our opinion, a queen-excluding honey-board will become a necessity for pure honey storage, whether in sections as comb honey, or in shallow or full-sized frames for extracting. A prolific queen in a small and shallow brood-chamber will endeavour to extend the brood-nest vertically as well as laterally, and especially will she do this in weather in which breeding obtains the ascendency over honey storage. At such periods, and under such circumstances, all our experience goes to prove that supers will be converted into brood-chambers, partially at least, and the queen will gratify her propensity for depositing eggs in the newly-built super combs, in preference to doing so in a lateral direction, and in a lower temperature in the brood-chamber below.

Hence the necessity for checking the queen's excelsior desire by the use of the excluding honey-board, and thus an approximation to that great desideratum, a brood-chamber filled with brood only, will be attained. The next desideratum, then, is a honey-board, so constructed, and with perforations of a size so nicely calculated, and proved by actual trial, through which the bees can pass to and fro, with the *greatest possible freedom*, but through which a queen cannot obtain an entrance to the supers.

Why, therefore, 'J. B. R.' (1966, p. 46) should designate the endeavour to supply such a honey-board as '*a new fad*' we are at a loss to discover. Excluder-zinc has not been used in England simply because, having been tried in past years, it was not found to be a success. A sheet of the perforated zinc, having circular perforations well-nigh too small for a worker-bee to squeeze its body through, was laid on the frames, and when numbers of bees, having with difficulty ascended into the supers, were unable to find their way back, and so perished, the idea of preventing the passage of the queen into the supers was discarded as impracticable. Not so with our American brethren, who imported the zinc-excluder primarily from this country, and when they found that it did not answer their purpose improved it, by experiment, altering the size and shape of the perforations, and inventing the 'slatted-queen-excluding honey-board.' And now they have, in their own country, manufactories of the improved excluder-zinc, which is used with perfect success in many of their largest and most successful apiaries.

The building of brace-combs, between honey-boards, frames, and sections, is another bugbear put forward as a deterrent, but which may be dismissed in few words. The excluding-board, to which 'J. B. R.,' quoted above, refers, is described in the *Adviser*, of July last, as having a bee-space on both sides of it, and these are the only spaces in which brace-combs can be built. Granting, therefore, for the sake of argument, that brace-combs are built in these shallow spaces of a quarter of an inch, we fail to see that they are very objectionable. After driving down the bees by the application of the carbolised cloth or by smoke, a thin-bladed knife is easily passed beneath the honey-board, and a slight twist will separate the attachments. But a little practice and ingenuity in the use of the excluder will do away altogether with the building of brace-combs. We notice in the *Record*, just to hand, a letter from Mr. Wilcock, of Doncaster, who after describing his successful use of shallow-framed supers for obtaining extracted honey during the last nine years, adds:—'I may also mention that I work excluder zinc under these crates, keeping the queen where she ought to be.' He tells us also that on his first trial of the shallow-framed crates over excluder zinc, nine years ago, that 'It was really astonishing to see how quickly the bees filled them. In one or two instances I have actually taken thirty pounds of honey in eight days from one surplus box. . . . Imagine my agreeable surprise when I lifted the quilt of the first to find the frames choke-full of splendid honey, all sealed over, and as solid-looking as a stone wall, while the combs were as white as ivory. I quickly changed full frames for empty ones, and in ten days the new combs were all filled out again with honey. In a good season I have taken from eighty to one hundred pounds of honey from one of these chambers.' We consider this most important testimony in favour, not only of shallow super-frames, but of the usefulness of excluding honey-boards. If Mr. Wilcock should, by chance, read these lines, he will confer on the readers of the *B.B.J.* a great favour by describing his manner of using the excluder zinc, and the size and shape of the perforations.

We are convinced that the use of these honey-boards is no 'new fad,' but that they are 'come to stay,' and to improve greatly the quality of extracted and comb-honey. No doubt attempts, from various methods, have been made to 'write them down,' but apiarists as well as others should 'prove all things, and hold fast that which is good.' So numerous and rapid have been the apiarian inventions and improvements of the last few years, and so great the competition amongst appliance-dealers, that no sooner is any novelty brought under the notice of the bee-keeping public than the cry arises that the inventor

'has an axe to grind,' or, in plain English, an attempt is being made to foist upon the credulous some worthless 'fad' for the purpose of filling the pocket of the projector. No doubt many novelties of this class have been 'pushed,' but in reality numerous and useful inventions by experienced and practical men, dealers and amateurs alike, have been placed before the public, worthy of the patronage of all bee-keepers. All, therefore, are not to be condemned simply because they are novelties. As instances in point, we may mention the great improvement in sections introduced during the last two or three years.

The One-pound Sections of Lee and Howard—$4\frac{1}{4} \times 4\frac{1}{4} \times 2$ in., which are worthy of being considered the standard size, and indeed have virtually become so—may be recommended to all. In these sections full sheets of foundation are inserted during the process of putting together, or folding, with the greatest possible rapidity and ease. In our own apiary we prefer them before others, and confidently recommend them. *Two-pound sections* have been neglected of late years, but we anticipate a greater demand for them in future. Our preference is for the $5\frac{1}{4} \times 6\frac{1}{4} \times 2$ in. as the most useful size, and worthy of being adopted as a standard.

Further, we advise the use of *new* sections, as those which have been already in use, even when unfilled, become soiled, and in such the appearance of the beautifully white newly-built and sealed comb is spoiled by the dingy look of its encasement. The price of sections is so low that it is bad policy to spoil the appearance of a one or two-pound section of fine comb-honey in order to save the expense of a halfpenny or penny case.

Examination of Colonies should be, for the present, as cursory as possible. If there be any doubt as regards a short supply of food, or dysentery, let the quilt be gently raised, and if the upper cells of the combs are found empty, place over the cluster of bees a 2-lb. cake of soft candy, and cover up as warmly as possible. If necessary, on a *very warm* day hives may be contracted by closing up division-boards, but no thorough examination, by the withdrawal of frames, or searching for queens, is admissible at this early period. Bad cases of dysentery of course form an exception. For the treatment of such refer back to former 'Hints.'

Robbing must be guarded against. On Saturday, the 26th inst., the sun shone out brilliantly and the air was full of bees, when we noticed several decided attempts at robbing, and slaughter had begun. This was soon checked by the application of the carbolised feather to the entrances of the attacked and attacking colonies. During these first spring flights the bees seem to be somewhat confused, and often enter the wrong hives, apparently not having sufficiently marked their own locality after their winter's rest. This often leads to robbing, and a weak stock may be destroyed by its strong neighbour in the course of an hour or two.

Mice.—We had a curious experience the other day when visiting an apiary. The day being fine, and the bees flying, we noticed a skep at which a few bees were making a decided set, evidently with the desire of robbing, but seemed afraid to enter, although there was no appearance of a defending bee. On removing the hive-cover and a piece of carpet which covered the feed-hole, peering through the hole we discovered a mouse climbing between two of the combs, and immediately closed the hole and the entrance.

The services of a fox-terrier were called into requisition, and the hive was carried into an adjoining field and turned up, when out jumped no less than five large field-mice, with which the terrier soon made short work. There were no surviving bees, but several pounds of honey, upon which the mice regaled themselves, were left. A most comfortable nest had been built out of the carpet covering the feed-hole, and suspended midway between the combs of the hive, a part of which had been nibbled to pieces and the remains covered the floor-board to the depth of several inches.

English v. 'British.'—A correspondent, Mr. Buchan of Dalkeith, writes asking us to prove our statement (in last 'Hints,' page 27) that 'small brood-chambers and the storifying system are pre-eminently English;' or to say if we meant 'British' instead of 'English;' to which we reply that the mention made, in the same article, of the 'Stewarton' as the most perfect type of a storifying hive, is sufficient evidence that we used the word 'English' in its broader sense—including English, Scotch, and Welsh—which is the general acceptation of the word in Continental Europe. If our friend, however, prefers it, we have not the slightest objection to the use of the term 'British,' which implies the same, if only he will keep clear of that abomination 'Britisher,' in common use on the Transatlantic continent.

Tits.—One word more to say—Beware of the 'Tits.' These pretty little pests are very busy in our apiary whenever the bees are flying; and on the alighting-board fragments of dismembered bees are frequently to be seen. So epicurean are the tastes of the tits that they much prefer the living to the dead bees.

Bee-Keeping in Ireland.—Makers of bee-hives with moveable frames by which portions of the comb can be removed, will find a good advertisement in the recently issued Agricultural Statistics for Ireland. The Registrar-General states that in the whole island there were 28,569 swarms at work, of which 9135, or nearly one-third, were kept in 'hives having moveable frames,' and 19,434 in other hives. The quantity of honey produced was 459,386 lbs., or an average of 16 lbs. per hive, an amount which probably exceeds what the uninitiated would consider possible. But of this total yield nearly half was gained from the new-fashioned hives, so that while the average store of a swarm kept in one of them was 23 lbs., that of a swarm living in the less commodious dwelling was only 13 lbs. It is curious to note that in Connaught, where there are less than one-fourth the number of swarms to be found in each of the other three provinces, the yield of honey per hive is considerably greater. Evidently the struggle for bee existence is less keen, for while an Ulster swarm will collect 22 lbs. a Connaught swarm will amass no less than 29 lbs. But the most productive hives in Ireland are to be found in Kildare, where 218 of the 'moveable frame' type produced an average yield of 37 lbs. of honey for each swarm. —*Daily News.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to "The Editor of the British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts* (see 2nd page of Advertisements.)

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

JOTTINGS BY WOODLEIGH ON A MEDLEY OF SUBJECTS.

[1969.] We bee-keepers are all so indebted to Mr. 'Useful Hints' for the many hints he is constantly giving in *B.B.J.* that one feels sorry to take exception to any one of them, but I trust few, if any, bee-keepers have taken his advice *re* Carson's black paint for hive-covers. If I mistake not, it is a kind of relined gas-tar,

one of the very worst substances that can be applied to roofs of hives, on account of the great amount of heat it absorbs in hot weather. Take as an instance my own apiary, which is situated in an exposed place, especially from a south-west and due west aspect, with the consequence that I have been obliged to make an artificial wind-break, *i.e.* bavins of underwood stood endways, and bound to fence with strong galvanised wire. The heat confined by this fence on a hot summer's day, coupled with the radiated heat from a sandy soil, and added to the absorbed heat of a tarred roof, would melt the toughest combs into a veritable hodge-podge in the bottom of the hive. *Experto crede.*

Enamel cloth is still a stranger in my apiary. I have no impervious quilts, except the imperviousness given them by the bees propolising them, and I have been fairly successful in wintering hitherto. What lessons the present winter season may teach us as regards bees wintering on artificial food, I will not pretend to prognosticate at present. The mild, open weather so far has been very beneficial to the health of the bees, by giving them many opportunities of taking cleansing flights, though, on the other hand, there has undoubtedly been a large demand made on the stores by the constant activity of the bees, when, in an ordinary season, they would have been in a state of semi-hibernation, therefore it behoves bee-keepers to see that stores do not run short. A cake of candy can be given to the colony at any time, with but slight disturbance. We hear from all parts of losses by starvation even now. What it will be in three months' time no one can calculate. Really, it is sad indeed to think of bee-keepers allowing their bees to starve when good sugar can be bought at 2*d.* to 2½*d.* per lb., and in some instances the supineness of bee-keepers who pretend to feed is lamentable. One will give a handful of sugar on the stool by simply lifting up one side of the hive, and placing the sugar on the stool, and then leave the bees to do the best they can with it; another mixes up a compound of beer and brown sugar, and feeds in a small plate, or in a wood trough, made by cutting a piece of elder-wood with a knot at each end, and then cutting one side of it off till the pith is reached, when it is scooped out and a trough formed capable of holding about two tablespoonfuls; and if one venture to put them in the way of feeding in the proper way, they often resent any interference with their old style, and retort, 'Ah, this is how my father, or grandfather, always fed his bees, and they always done very well, and I shan't bother myself with bottles of stuff atop, as 'twill sure to run down faster than the bees can eat it, and then they will be drowned, or all stuck together!' Or another, who prides himself on being more canny than ordinary, will say, 'Ah, that accounts for you having such a lot of honey every year, if you feed your bees with so much sugar, as it stands to reason if the bees don't want to eat it all, it goes to make up the pot of honey!' It is futile to reason with them, or to tell them that a modern bee-keeper at beginning of the honey-harvest, by good management and judicious feeding in spring, fills his hive with bees and brood, and not a square inch of stored syrup or old honey is wanted in the hive, but only combs of brood, teeming with hatching bees, ready to take the field and garner up a store of honey for the bee-keeper, and stores for the uses of the colony in the future.

The little matters of wide entrances and impervious quilts are cropping up again, I notice, in recent numbers of our *Journal*. Do not the enlightened writers remember that it is to such pioneers of the craft as Mr. Abbott that we are many of us indebted for the mere elements of the cult? Well do I remember the letters that appeared in the *English Mechanic* from the pen of Mr. Abbott before the *Bee Journal* was even thought of. The hives of the late Mr. Woodbury had impervious wood crown-boards, with fixed entrances, and also how the bees of that day managed to exist—aye, and in a state of health too. Is it not recorded in the annals of the *E. Mechanic* how one (a Mr. Fox) contrived a wonderful glass super on the up-grade principle, with a winch and rack-and-pinion arrangement, so that it could be raised higher every day, or at least as often as required, according to the income of honey and the comb-building done by the bees. Then came the days of 'Bee Journalism,' and for a long time the impervious wooden crown-boards held their own against the persistent attack of various writers in the pages of the *B.B.J.*, the bees still living on much as they had in former ages prior to frame-hives, adapting themselves to the various nondescript habitations the ingenuity of man had contrived or devised as suitable vehicles by which their stores might be shared, and in some cases plundered; but a change was coming, surely though gradually, and the minority was increased till it grew into a vast majority in favour of pervious or porous quilts in place of the wooden crown-boards; the porous quilts were devised to admit the gradual though imperceptible passage of any deleterious gases or moisture emanating from the cluster of bees, and for several years we found our bees wintering well, coming out in the spring in good form and condition, *i.e.*, perfectly healthy. One was inclined to think that the *ultima Thule* was reached, but, no; persistent, ever-present change was at hand, the inventive faculty of the nineteenth century was on the alert with some new thing to take the place of the old, and a new and totally different material was brought into use to conduce to the health and happiness of our busy bees. Erstwhile it was pervious, now it is impervious quilts; the pervious was to allow the passage of moisture, so that the colony of bees should not reek in their condensed breath. The impervious is intended to fill the same laudable design; if it does so or not I am not able to decide, as I have not began to use it, though in years gone by I have had glass crown-boards or covers to the hives as experiments, with loose chaff over the top several inches thick, and even in a glass hive with only an entrance of 1 inch by ½ inch high, the bees came out second to none in the apiary. I may add I have still a few hives with the wood crown-boards and the openings covered with glass, in which bees have wintered successfully for the past decade without a single loss, and without throwing a swarm in one instance in all the ten years, though they have been allowed the whole twelve frames the hive contains to winter on, year after year, and no bothering about requeening on my part; the hive in question has been worked entirely on the let-alone principle, and all I have had to do year after year has been to take off the surplus. Even in the last never-to-be-forgotten year of three eights I had a little surplus from it, and last autumn was the first time I ever put a feeder on the hive to eke out winter stores; yet even in a hive containing twelve frames, with space above frames under the crown-board, bees have managed to exist in health, and I trust in comparative comfort. What an enigma to our understanding is the adaptability of many and varied forms of life! With all our artificial bee-fixings the *Apis mellifica* manages to exist, and to all appearances fills its place in the economy of nature in the recurring seasons, as it did when the patriarch counselled his sons to take a little honey as a present to the governor of Egypt.

Situation of hives, *i.e.*, the height of hives from the ground, has attracted some notice lately, and I was very pleased to see the familiar signature of Mr. Simmins once more in the pages of the *B.B.J.* I may say that the bulk of my hives are ten to twelve inches from the ground on legs. I have a few skeps placed near the ground only a brick edgewise between the ground and the floor-board (or slab of wood); now these hives have been in that position four years, and others in same rank on legs a foot long side by side under exactly the same treatment, and I have not been able to notice any

difference as regards the earliness of swarming or supering condition. Each of my hives has a sloping board from the ground to the alighting-board of the hive, and I like some good wide ones,—the width of the hive is a good size. Do you ask why? Well, in the first place, to give the young bees a promenade in the sunshine, secondly, to form a good space for the older bees who are foraging for honey, pollen, or water to alight on; thirdly, to form a veritable Jacob's ladder by which the aged bees, worn with hard labour and heavy burdens, may reach their *dulce domum;* fourthly, to form a wind-break underneath the hive; this is especially important where hives are placed in front of walls, the wind striking on the wall comes out under the hives with force enough to carry any loaded and partially benumbed bees that may try to make a landing during the gust, to the ground to perish in great numbers. I have noticed many times quantities of bees crawling about on the ground by the side of hives where the hive has stood in a very exposed place, even with the sloping board: this generally happens when the wind strikes sideways to the hive. My opinion is that with a supple back the bee-keeper should have his hives raised about ten inches on a cinder and sawdust foundation, with sloping boards reaching from ground to alighting-board, the alighting-board to slope at a different angle to the lean-to board. The bee-keeper who is a martyr to backache must arrange his hives to suit his stooping capabilities, and his bees must put up with the extra work of carrying their stores into his arms. No doubt many will perish in the attempt, especially in the early spring during cold, stormy weather, and so the bee-keeper will have to accept a lighter super or a few pounds less honey than his more fortunate friend with the back that does not ache at trifles.

Glad to see your first communication, Mrs. L. Harrison, to the *B.B.J.*, both yours and Mrs. Chaddock's names are familiar as household words to me through *Gleanings*, which a kind friend sends me regularly. I feel sure you will make many friends in the old country; and I trust our lady bee-keepers in England may be induced to pen their experiences in the craft after the style of your friend Mrs. Chaddock, whose letters to *Gleanings* are always the first ear of corn I rub out to get at the golden grain.—WOODLEIGH.

A REAL ORIGINAL.

A BRIEF SKETCH OF HER DOINGS AMONGST BEES.

(*Continued from page* 45.)

[1970.] 'Now, Mrs. W., I am here again.'

'I see you are, sir.'

'Any swarms yet?'

'No, and not likely such weather as this. There'll be neither swarms nor honey this year if we don't get some better weather.'

'Oh, we must have patience, Mrs. W.!'

'Yes, that's what you said tother day, but it's—well, I suppose we can't alter things.'

Being invited to a seat, and anxious to learn still more before leaving the village, I opened out by advancing a few suggestions I thought might be useful. They being well received, and remarked upon, I was made to understand the head was not full, but was quite ready to store more knowledge, so many were the questions and answers. Here I took the opportunity of asking more minute particulars.

'You will, I hope, excuse me, Mrs. W., if I ask you a few questions. I feel so interested in your bee-garden, and should be glad to know all I can about it for my note-book.'

'You'd have a nice book full, sir, if I told you all my doings with my bees.'

'I am quite sure I should, Mrs. W. How long have you kept bees?'

'I can't tell you, I don't bear it in mind, but soon after I was married; but then, you know, my father had bees when I was a child, and my grandfather kept bees, so I've been among 'um all my life; but not among such a lot as mine, you know.'

'I suppose, then, your grandfather's bees would come to your father, and your father's to you.'

'Yes, but my mother had my father's bees after he died, and when she died I took 'um, and put mine and all together.'

'Do you remember at any time during your father's life if he was without bees?'

'Yes, I do; but only once: when I was a girl, they all died, and he could never make it out, and he went and bought three lots from a man in the next village. We have never been without bees since.'

'Do you ever remember having a strange swarm come to you?'

'No, but I know I've lost a many. They get up, and away they go; and I know I can't run after them. They come out four or five together, sometimes, and then I am a bit bothered. Last year, in June, I had either six or seven. All went in a heap together, and I didn't know what to do for the best, so I got a tub, as you see in the garden, and put 'um in.' (The tub here mentioned is a sugar-cask, about 3 ft. high, wrapped round with hay-bands, a hole cut in the top for supering, but it does not appear to contain such a strong colony as I should have expected. Very probably some of the swarms turned out again and escaped after being tubbed, for I learnt when examined at evening there were seen to be three separate clusters in the tub.)

'I noticed your bees throughout are so very regular in colour, and this made me ask the question about strange swarms coming to you. Have you at any time noticed bees differently marked?'

'No; mine are the same old sort we have always had. I once had three hives, but where they came from, and how they came to turn out as they did, I never could make out. They were as vicious as vicious. I couldn't go near 'um but they would sting me. I tried 'um till I was out of all patience, and I thought to myself, I won't have you about any longer, and I then and there took 'um up and finished 'um off, and I have never been bothered with suchlike things since, and I hope I never shall again. They were nasty little black-tailed uns, a lot smaller than the others, and regular bad uns. I don't stand about stings, but I didn't care to have 'um always at me without any notice. Now, sir, how would you account for that? Most likely you can tell me, as you know so much.'

'Well, Mrs. W., I am afraid I know so little,—so little indeed as not to be able to account for the appearance of these three stocks of little black-tailed ones, unless you were, during the previous year, favoured with a strange swarm from the woods or elsewhere, and that the swarm the following year gave you two swarms.'

'Well, it may be so, but I don't think so. I never see 'um come, and I'm always about in the garden, and should have noticed them come. Besides, how came it that them three stocks as stood together were all alike, and as bad as one another? I'm not so sure about the swarms, and if the two came from the one, and I don't remember if the one did swarm at all, I don't think I should have stood the swarm against the old stock: that's not my plan.'

'It certainly was a rather singular case, but from the fact of your bees before and since being so good-tempered, and are evidently of one pure race of our old English bees, leads me to conclude, as before remarked, that the black-tailed vicious bees were strangers. However, you did a wise thing to be rid of them, and your way of doing it was the most sure, and you are fortunate not to have a trace of them left.'

'You may be right, but excuse me, sir, don't you

think bees have a way of telling one another what's going on, and them three stocks as stood together done so, as they were all alike for bad temper?'

'Yes, bees have some means of communicating to their fellow-workers in and about their own hive, but they do not hold that kindly intercourse with strangers outside, as, from your argument, you appear to think.'

'Well, you know, sir, when bees are out at work in the fields they are friendly enough with one another; you don't see them fighting, or anything.'

'Quite true, Mrs. W., it's a fair field for all then, there is no particular ownership, and all are too intent on getting as much as they can to waste time squabbling; but when at home they are a bit different, as you probably know from experience.'

'Yes, I do that, and specially when I'm taking the honey; but my bees are very quiet as a rule, and though I've so many, and close to them school children, I don't hear of the bees stinging any—I wish they did sometimes—and they wouldn't bat 'um about as they do; they kill thousands, poor things, as they come home ladened.'

Being myself here a little ladened, I took leave of my friend for the purpose of unloading whilst all was fresh to memory.

The following evening I called to know how things had gone on during the day. I could see all was not quite serene.

'No swarms to-day, I guess, Mrs. W.?'

'No, sir; I don't know what's come to my bees this year; never so late before as I remember.'

'Oh, you must have patience, they will swarm when they are ready.'

'I expect so, but I wish they'd soon git ready; they're wasting my time and their own too; the season will be gone before they come out; I shall have no honey to take this year. I have heard there is a way of making swarms, but I have never seen how to do it, and maybe I should be a bad hand at it. You'll excuse me, sir, now how do you do it? You'll think I ask a lot of questions.'

'I fear, Mrs. W., that I am the troublesome questioner; I promise you not to complain of you if you give me a like promise.'

After giving full particulars of making artificial swarms, and advising a trial, and a promise to perform the work, my offer was declined with thanks, with a closer,—

'It might answer, but I've no faith in it, and besides it might cause robbing and disturb the lot. I am much obliged to you, sir, all the same, for telling me all about this making swarms; you see there would be much to consider, and if the queen didn't settle, and took off, where should I be? No, I sha'n't trouble that how: they may take their chance; I must have patience as you say.'

'Yes, Mrs. W., patience; bee-keepers need plenty.'

'Ah, they do, specially swarming time, and when you're waiting till they fill their hives; but it looks to me as though there won't be a deal to wait for if the weather don't change, so as they can swarm.'

'I should like to advise your supering all strong stocks at once, Mrs. W.; that would, in a measure, check swarming, the risk of losing them, and so secure your honey early for the market, when there's a better chance of making a good price.'

'Yes, that's all very well, but there's no good putting supers on if the bees can't get out to gather anything; and as to a market and getting a better price, I stand need of that, sure enough, to look at all my expenses.'

'Do you find a fairly good market for your honey, Mrs. W.?'

'No, only a very mean 'un. I go trapesing about calling at different houses, sometimes I have a middling good day, and sometimes a bad 'un. I have several regular customers who always take of me every year.'

'About what price do you make of your run honey?'

'Well, sir, you know, my honey is generally very good, but I don't often get more than 10*d.* to 1s.; if they get comb as well as run I put the two together and charge 1s.'

'You must get a large quantity of honey, Mrs. W.; about how much do you get?'

'That depends on the season, sir, sometimes more and sometimes less.'

'Well, about how much, on an average, per hive?'

'I really can't tell you, I don't bear it in mind; I don't take any account of what I sell, and I keep spending the money as I get it.'

'Not quite all, I guess, Mrs. W., you have not lived all these years amongst bees, and not learnt from them how to store up?'

'You said store up: look how I have to work, and my time and expenses going to sell the honey after I've got it; but I shan't be troubled much this year if the weather doesn't soon come better. Now what's your opinion, sir, about the price good honey ought to fetch; you ought to know a paying price.'

'Well, Mrs. W., I think good honey ought to sell for not *less* than 9*d.* per pound, but there are many who think 6*d.*, and even less, is a fair price.'

'What, so low as that, do they? I had heard as folks do sell at them low prices, but it must be bad rubbish, and such folks ought never to keep bees, and it would serve 'um right if their bees didn't gather them any honey.'

'I really think it would, Mrs. W., serve them well right, and I wish I could give the bees the tip not to, it might make it better for those of us who like a fair price. I suppose you make use of all your drained combs and inferior honey by making mead, Mrs. W.?'

'Yes, sir, I usually make a nice lot of mead, and could sell it, as it was good; but now nobody may sell mead without a license. I found that out myself, for an exciseman's wife as I was going to sell some to took the trouble to inquire of her husband, and he said, No, I musn't sell without a license; and that's true, sir, if you didn't know it afore; so you see we can't make up our expenses as we used to.'

'You have no difficulty in selling wax, I guess?'

'No, I haven't, but I don't get what I ought for it, considering the trouble and mess to get it nice, and mine's always good. You know, sir, I never waste anything, if I know, I turn all to account that I get out of a hive; and I stand need to, for all my trouble and costs. I don't know how other folks do as don't, but I think they must lose, and maybe don't know it.'

'You are about right, Mrs. W.; no doubt much more might be got out of a hive by following your plan; and, in respect to mead-making very much more might be done in that way, and extended in making other light drinks from honey.'

'Maybe you're right, sir, but then there's the license, you musn't leave that out; I'm of the opinion there shouldn't be a license for what's made from honey.'

'I quite agree with you, Mrs. W.; bee-keepers ought to be exempt from such charge, and, indeed, free from all interference, except when they murder their bees, then I think they should be brought to book.'

'I'm of a different opinion, sir, and I think them as let their bees pine to death deserve more to be brought to book, as you call it, than those as finish 'um off, and don't keep 'um to pine to death.'

'Yes, Mrs. W., to keep bees and let them weary out a starving existence is indeed cruel, and perhaps the more cruel of the two.'

I'm sure it is, sir; depend on it, and you must own to that. Now I do attend to my bees and see they don't starve. I've only lost two out of my lot this year, one by robbers, t'other I don't think was from want, as I gave them the same as my other weak stocks, but they

didn't take it, and I never could account for it nohow. I make my own sugar-cake, and I know it's good. I always give 'um sugar-cake.'

'You have been very fortunate indeed, Mrs. W., and such facts speak well for the attention and care bestowed upon your bees; I have not, to my knowledge, met with any like small death-rate.'

'Then you will give me a little praise, though I'm one of the old-fashioned bee-keepers?'

'Certainly, I give you very great praise, in fact your equal it has never been my good fortune to meet, and I doubt if any other bee-keeper in England has; it has been a great pleasure to me to have found you, and I shall have many pleasant recollections of my visit, and your kindness in giving me the opportunity of learning so much from you.'

'You said learning so much, I think it's but little you'll learn from me that will do you any good, but you are welcome to what you get.'

'Thank you, Mrs. W., I shall look in again to see how swarming proceeds.'

'There'll not be much of that if the weather don't take up, and we have better weather so as bees can get out to work. I don't remember such a bad season as it is, I begin to feel concerned; it's a very serious consequence to me, and there's no help for it.'

'No, Mrs. W., we must be content, we can't have always what we would wish, and it's well we cannot, or we might be less thankful than I fear we often are for the many favours; remember last season, Mrs. W. Good day.'—R. R. Godfrey.

(*To be continued.*)

BEES AS SUGAR TESTERS.

[1971.] I have had my attention drawn to a paragraph in the *Lancet* of January 12th last, which I thought might be of interest to your readers, and therefore make no apology for occupying your valuable space with it:—

'Though to the human palate cane sugar, beetroot sugar, and saccharine, are pretty much alike, it is said that bees are much more discriminative. They will have nothing to do with either of the last-named two substances. Glycerine they will take only, however, it is said, if it be pure.'—Alfred Neighbour, 149 *Regent Street, London, January 26th.*

BUYING AND MOVING BEES.

[1972.] A subscriber wants to know which is the best time of the year to purchase bees—fall or spring, and if they can be moved at any other time of the year, except when there is snow on the ground, so that they can be moved upon a sled.

If bees are purchased in the fall there cannot possibly be any profit in the investment, except they can be sold at an advance until the following summer, and the risks are large. Veterans, who have grown old in the service, often lose many colonies during the winter. The seasons are so variable, and we have not the gift of knowing whether the coming winter will be very cold, moderate, or mild; if we had we could advise more wisely.

I have seen bees die during the winter when the conditions were favourable for their living. When I took out the combs and examined everything connected with the hive carefully, I could not see any cause for their death. I simply knew that the bees were dead. Perhaps if there had been a coroner's jury, the verdict would have been 'heart disease.'

When a colony of bees that belongs to a person who owns many colonies dies, the loss is trifling, for he can another season use the hive and comb. But when a person purchases colonies in the fall, and they perish during the winter, he may lose his combs by the moths before he can procure swarms to put into the hives. Occasionally, colonies are sold at sales for not more than the honey and hives are worth, then it would be safe enough to invest.

In the spring a good, strong colony of bees promises to be a good investment. I have never seen a season but that, during some period of it, bees laid up stores for winter. It is true that a crop of honey cannot be depended on every season in most localities. Last year and this were partial failures, owing to the severe drought. Agriculturists and horticulturists have losses and failures in crops; pigs and chickens die of cholera; apples fail; while corn, wheat, oats, and potatoes are not always sure. On the average, taking one year with another, three crops of honey out of five can be depended upon.

Moving Bees.—Bee-keepers of 'ye olden time,' who used the gum, or box-hive, thought that the only time to move bees was during good sledding; but this is a mistake, for they can be moved, with care, almost any time during the year.

There are several points in favour of moving bees upon the snow where they are wintered out-of-doors. They can be lifted carefully and taken many miles when the sleighing is good, with so little jar that they will not find out that they are moved at all.

A bee-keeper told me that when he started in the business he purchased a colony in a box-hive and moved them home in cold weather in a wagon over rough roads. The bees were shaken from the combs into a pile in the bottom of the hive. Many of them were numbed with cold and perished, for they could not crawl back where their stores were.

Beginners in bee-culture have got into more scrapes in moving bees than in any other part of the business. Many people do things by halves, and when told that they must fasten up the hives so that no bees can get out, they will stick a wisp of hay into the entrance, saying, 'I guess that will do, and I will stuff some more around the hives when they are in the wagon,' and lift them in.

I have known of a serious accident from a hive being knocked off through the jolting of a wagon over a rough road. A few nails wisely driven would have saved much loss.

There is another difficulty in moving bees even in December. They may be moved safely, and all go well until the first warm day when they are on the wing, when they will return to the place where their hive stood, unless it has been moved more than a mile.

One fall we moved hives together so as to protect them, and the first warm day I noticed bees flying where the hives had been. The night following there was a light snow, and the next day I gathered up handfuls of benumbed bees that could not find their hive. When bees go to work they run out and fly, apparently taking no note of their surroundings.

A new swarm always takes its bearings, and returns to the same place; if it only remains a few hours after hiving, and is moved after sunset, many will return to the place where the swarm was hived.

When bees are moved in the spring they are not so apt to return; it appears natural for them to mark their locality with the advent of a new season. When hives are moved it is well to put hay or grass against the entrance, or a board, so that they cannot run out and fly as they usually do. When they bump their heads they will look for a reason, take notice of their surroundings, nad return to the same place.

Tenant farmers usually move about the first of March, and many of them have a few bees, if they are not in hives of the latest fashion. March and April are very trying months on winged stock, and it is best that they be kept as quiet as possible. As the roads are usually rough and full of chuck-holes at this time of the year, it

would be well to move their bees in advance the last of winter, on the snow if possible. They should be protected from winds, and from the inroads of stock, and then not be afraid of using straw and corn-fodder liberally. It would be better for the owner to do this moving at his leisure than when crowded with moving, seeding, &c., and much better for the bees, as they will be at home, having marked their location, at the time of their first spring flight.—MRS. L. HARRISON, *Peoria, Ills.* (*Prairie Farmer.*)

CONTRACTING THE BROOD-NEST WITHOUT MECHANICAL CONTRIVANCES.

[1973.] The history of nations, of the arts and sciences, goes to show that progress advances upon the waves of revolution. And so it is with our own peculiar occupation; what to-day is considered an improvement in appliance or management may to-morrow be entirely superseded by a far more economical invention, while something long since discarded for the want of proper application, may now receive the finishing touch and be brought forth from oblivion, that but recently threatened to be total extinction.

Great improvements have taken place in the manner of securing comb honey, and still greater improvements will follow; but for the present I will remark upon a few new features relating to the preparation and condition of the stock hive both before and after supering.

The original way of allowing the bees the full capacity of the hive all the time had been almost discarded when my non-swarming plan came on the scene, and I found the benefits of contraction to be *nil*. Hitherto I had supposed, with others, and many still hold the same opinion, that unless the number of brood frames as well as the space were limited the bees would not readily work above.

Nevertheless, under the non-swarming plan, with a doubled stock hive, and the bees having free access to all this additional space, no difficulty whatever has been experienced in getting them to work freely in the sections. And why? First because of the liberal use of comb already worked out, and next because the brood nest was practically limited, while the large amount of surplus room below did away with the necessity of using excluder zinc.

But what are the advantages of limiting the size of the stock hive? Its advocates (myself once among the number) are wont to claim that *all* the honey goes into the sections. But further consideration and experience have led me to look at the matter more seriously. True, all the honey *stored* does go into the sections, but that is not the point. The real question at issue is, whether *more* honey is secured, or better results obtained in the aggregate?

I do not for one moment propose to go back to the old plan of leaving the stock hive entirely undisturbed, but I do intend to show that while bee-keepers have been considering division-boards indispensable, and excluder-zinc an article of the greatest necessity, it is possible to secure every advantage offered by their use, and greater economy and profit, without their aid, by a judicious manipulation of the brood-chamber and sections.

Now, take two hives in fair condition at the end of May; crowd one in the usual way by removing several brood-combs, and closing up with division-boards at the time they are supered. A certain amount of honey will be the result, with a brood-nest containing practically no honey, but over-crowded with pollen, to the detriment of the queen and future population and prosperity of the hive, and feeding to be carried on after removal of the supers.

Now, it is a well-known fact that bees gather honey (when it is to be obtained) in proportion to the amount of space, or empty cells, they may have on hand at the time of the greatest emergency. How important, therefore, as is so well understood by all, in the case of working for extracted honey, to give the bees all possible storing space 'in the nick of time.' Has not the division-board contraction method, therefore, been a short-sighted policy? I say most emphatically, It has! For, let the brood-nest of the second hive be contracted by the new method as follows:—Supposing the hive to contain eleven frames (standard size), more or less full of brood at the time supers are to be put on, then remove all but the five best combs of brood. Arrange these near the centre, and on either side three quite empty combs. The bee-keeper will, in his experiment, soon notice the decided advantage the latter arrangement has over the contracted space of the other hive. For all practical purposes the brood-nest is limited at just the right time; the spare combs at the sides will keep the actual brood-nest clear of both honey and pollen all the season; the population, therefore, is kept up to the highest standard throughout, while the surplus accommodation below gives no need for excluder-zinc. The spare combs accommodate the rush of honey during the day, to be ripened and carried above at night. Hence, acting upon the principle of giving the fullest accommodation to the bees at the time they most need, and are fully prepared to make use of it, there can be no question of the superiority of such a plan as compared with that of allowing them no storing space at all, except as they build it day by day.

The plan has worked well even in such a season as '88, while I have found the greater space below to be not the least hindrance to getting the bees at work in the sections.—SAML. SIMMINS.

BORGUE HONEY.

'Nor bee that bends the purply bell
Has half the sweetness in its cell
Frae oot the sweetest flooer.'

[1974.] So sang a Galloway poet of an early sweetheart. His language might have been modified in some degree had he but tasted the famous Borgue nectar; it has lost none of its sweetness by the controversy that has raged in your columns—there yet remain

'The brilliancy,
The pleasant smack, consistency;
In brief, its wondrous excellency.'

It will be in the recollection of your readers who are bee-keepers, and possibly of others, that in the spring or early summer of 1886, in consequence of a short communication I made to your 'Jottings by the Way' column, that a correspondent from the Urr district claimed that his region produced honey equal to the famous Borgue product, and suggested that samples be sent to some friend of his to decide as to the merits. Although it was thoroughly well known throughout the Stewartry, and many other places far beyond its borders—possibly not at 'Pekin'—particularly by connoisseurs of the table, that Borgue honey was *facile princeps*, I thought it might be interesting to have a more extended competition at Borgue Show, and to induce that I offered, through you, half-a-guinea to the first prize in the open competition for dropped honey, for three seasons. The increase in the value of the prize, and in particular the publicity given to the competition by your journal, had the desired effect, as exhibitors in the open class competed from Kirkcudbright, Twynholm, Castle-Douglas, Dalbeattie, Beeswing, &c., in the Stewartry, as well as from Wigtownshire and Ayrshire. The result of the three years' competition was that Borgue honey each year took first and second prizes, no competitor from outside the parish ever getting a place on the prize list. I made careful inquiries as to the

judging in 1886, and was told that the judge was most painstaking and careful; that he did not know whose the samples were, nor what district from; that a short leet of the eight best was made; that this leet was all Borgue honey. In 1887 the first prize was awarded to Mr. Wylie, Borgue village, but his sample was disqualified by too late entry. Mr. Main, Blackcraig, was then first, followed by another Borgue sample, so that in 1887 Borgue was practically first, second, and third. This last season honey has generally been of comparatively indifferent quality, but Borgue, as before, carried off both the honours.

Opinions seem to differ in regard to the judging of honey. Mr. Wm. Raitt seems to think the less colour the better. Mr. Wm. M'Nally says of Borgue honey it should have a 'clear amber colour.' 'Cheshire's' description of ideal honey, as given by 'A Stewartry Bee-Keeper' in your issue of November 23, agrees with Mr. M'Nally. It is due to 'A Stewartry Bee-Keeper' to acknowledge that the greatest excellence of Borgue honey is its pronounced flavour peculiarly pleasing to the palate—more marked when granulated or candied.

To my mind no judging of 'run honey' can be complete when it is not examined after crystallisation. Run honey is usually consumed after it has candied, and the form of granulation it assumes and flavour it retains when set are all important with consumers, and will regulate value. I have before me seven samples of this year's Borgue (they are not up to the usual quality), and the first prize at Castle-Douglas. All are now candied. The Borgue samples vary in colour from a pale to an amber shade; the amber-coloured have the richest and most pronounced flavour; they have all a rough grain. The Castle-Douglas is the palest of all. Its granulation is smooth and lardy, and compared with the best Borgue samples the flavour is deficient.

I enclose a bank draft for one guinea, which please send to the secretary of the Borgue Society, as the prize for the best answer to the query—'*To what is the peculiar excellence of Borgue honey due?*'

I had other points noted, but dare not occupy more space; but rather ask your kind consideration for occupying so much in seeking to prove that 'there is such a place as Borgue,' and such a thing as the famous Borgue honey.—A. M'N. (*Abridged from the 'Kirkcudbrightshire Advertiser'*).

QUILTS, BEES, &c.

[1975.] In the article 1940, page 7, two or three subjects have been touched upon which I would desire to have cleared up. First, the use of impervious quilts (glazed cloth). I think it would be advisable for any one laying down the law on a subject to state where the bees are located, as, for instance, in North Wales, where I was during the last summer, I saw the evils resulting from its use, owing to the excessive damp and cold outside. Every hive in the apiary was covered with it, with three layers of thick carpet or flannel over, but the interiors of the hives were streaming. In my own apiary I use a piece of coarse sacking, and over it, winter and summer, two layers of felt carpet, and my hives are always dry. I have found that even a third layer produces dampness. I may say my hives are all double-walled, the inner wall being 1 in. thick, and the outer case ½ in. thick, with 1 in. air-space between (not confined) all round. I gave up using cork-dust, as I found it a harbour for insects, besides being messy if loose, and liable to blow into the hive. I contract the entrances during winter and early spring to 1 in. I do not find my quilts troublesome owing to propolis, and I can remove them easily without jarring the bees. I use Abbott's bars placed at right angles to the entrance, as when I use them parallel (as in the Combination), I once nearly lost a stock owing to the accumulation of filth under the bars, which prevented the bees' egress. When parallel it is unnatural, as when bees are allowed to build for themselves they invariably build at right angles to the entrance, or nearly so; and it seems to be a natural instinct on the part of the bees, as combs so placed could be kept better ventilated. Dealers are always inclined to advocate the use of bars parallel to the entrance, as hives of that description are made cheaper, and are therefore more advantageous to them. As far as roofs leaking, it would seem to me that if the hives were well kept in paint and putty, such a thing would be impossible. I may say my hive-roofs slope from front to rear, with wide eaves all round. The top is made of three pieces of wood, the joints being covered with two cleats, and the whole well painted. I have tried all shapes, but find the rain liable to drive in in most of the others. My own have wide plinths all round the bottoms of each part, so that rain cannot drive under.

In article (1944), p. 9, although I quite agree with the writer as to the advisability of hives low down to the ground, yet I think he and others are going to the other extreme, and place them too low. With me, if I had the alighting-board down to the ground, the rain splashes would go inside the hive; besides, slugs would speedily crawl up, and mice get a foothold to gnaw a way in. The stands I use pretty generally are the 'Simplex,' and are not more than 9 inches from the ground, and are placed on stones an inch above the ground level.

Another subject that I, as an amateur, would wish cleared up is, Which have proved hitherto on all counts the superior—Mr. Woodbury's Ligurians or Mr. Benton's Carniolans? Of course fresh blood from time to time is a necessity if strength and good qualities are desired; but lots of amateurs I have spoken to seem to prefer the old Ligurians, first because they are a more distinct species, work well, and breed fast. It seems to me, to look at, there is very little difference between the so-called Carniolans and ordinary blacks, they are evidently a cross. *All dealers praise them.*

Has any one tried the old-fashioned round-holed excluder-zinc as separators in a section crate? A dealer whose list I have before me advocates it very strongly. If round-holed, why not the oblong? Virgin queens (I notice under 'Useful Hints,' p. 3) are being sold in America. As they require nitrogenous food and warmth, would not travelling a distance affect them more than a fertile queen? Has any one tried taking drones from an apiary at a distance and introducing them to their own hives? I have done so from six or seven miles away, but as there were drones in my own apiary I was not sure of success. As the good qualities seem more frequently handed on on the drone side, I decidedly think proper trials should be made the ensuing season with a view of discovering whether this can be done or no, and its utility.

A subject to which I would draw the attention of the compilers of *Modern Bee-Keeping*, the measures given for the single wall hive are 14½ in. from front to rear, and 15 or 15½ in. sideways for ten bars, and this without allowing for dummies. I have found that if I give the full half-inch distance at the sides it would prevent the interchangeability of bars, as bees would thicken the combs there, *i.e.*, unless the combs were pared down. I only allow a quarter of an inch at the sides, and can change about the combs easily. My hives are 'Woodbury,' measure 14½ in. square and 9 in. deep, and take 'Standard' bars, and after years of experience I find them the simplest, most economical, and the best in every way. In most Guide-books the suggestion is made (especially to the novice) to use only half sheets of foundation, or otherwise to wire the frames, as, when whole sheets are used, the bees are liable to draw out the comb unevenly and at the base before they have fastened the sides and tops securely, with the result that

the comb drops. I used to have lots of messes resulting from whole, aye, and half sheets dropping down, but now I rarely have anything of the sort. I may say I have tried nearly all the dodges, wedges, nails, &c., for fastening sheets in, but have gone back to the saw-cut. I have tried, as some suggest, using sheets of foundation a tight fit at the sides, but bees do not seem to take to it well. A plan that suggested itself to me years ago, and I have since always adopted, is to use a central guide of wax one-sixteenth of an inch thick, down the side bars of the frame, and in less than twenty-four hours the comb is well fixed all round, and cannot be shaken out, and if the sheets are a little narrow for the frame, instead of leaving a gap, as they sometimes do, the bees fill the space up with cells, and I find also they work the comb well down to the bottom bar. I invite discussion on these subjects.—A JERSEY BEE-KEEPER.

COUNTY ASSOCIATIONS.

[1976.] Having occupied a considerable portion of your valuable space, I had not intended to have trespassed again upon your kindness on this subject; but as several of your later correspondents appear to be under some little misapprehension as to our motive and object, I venture to endeavour to remove them, at least as far as I am myself concerned.

I am sure we must all thank you, Mr. Editor, for the broad and kindly manner in which you dealt with the subject in your last issue, and also the Hon. and Rev. H. Bligh for his valuable contribution on p. 6. It appears to me that the great stumbling-block of the controversy are the words *ex officio*, and I quite agree with your remark on county representatives being *ex officio* members of the central committee. But I have more than once pointed out that in the event of the British conceding the point of giving the counties a representative on the Committee, it would be only fair that the Counties should bear their fair share of responsibility; and I believe they would be willing to do so.

Now that the matter has been brought under discussion, and as it seems probable that some change will be proposed in the constitution of the British B.K.A., I do most earnestly hope that it will establish her upon a broad basis, that will enable her to rise to her proper position as the national Bee-keepers' Society of England.

In order that I may not be charged with holding Utopian ideas which are impossible of being carried into practice, I will, with your permission, throw out one or two suggestions by which I think that this desirable end may be gained.

My own opinion is that the British Association should be what may be termed a confederation of County Associations bound together with one object, that is to say, that the parent society shall for national purposes gather in all the various affiliated associations, but that for the purely local matters the latter shall have much the same powers they now possess, but shall be held responsible to the central body for its proper carrying out of that work.

Now, how could this be carried out? It must be by representative means, and I would suggest that a body shall be created which shall consist of one or more representatives, or more correctly delegates from each county, which may be called the Council of the British B.K.A. This body need not meet but once, or at most twice a-year, when they shall have brought before them the general affairs of the British B.K.A. during the past, and decide on its future action, the carrying out of which shall be placed in the hands of an executive committee which may be drawn wholly from the Council, or part from present Committee and the remainder from the Council in such proportion as may be decided upon. There may be some difference of opinion as to what business shall be brought under the control of such a body, but I believe that the best plan would be to make them responsible for the whole of the business of the British Bee-keepers' Association, and that each county could then be fairly called upon to contribute its fair share towards the expenses of the same. By some such plan as this I believe the whole of the difficulty would be met; counties would have no objection to pay the expenses of their representatives to the council meetings, for they would be held responsible for its decisions, and in that case would take care that they had a voice in the matter. I think it would be found that the executive committee would be composed of most of the same gentlemen as the present committee, but they would possess far greater power and authority from the fact that they would speak in the voice of the whole of the bee-keepers' associations in this country.

I have endeavoured to very briefly and roughly to sketch out what I believe to be a solution of the present state of things, trusting that it may help towards that desirable end.—A. D. WOODLEY, *Donnington Road, Reading.*

[We offer no apology for having omitted some portions of our correspondent's communication, which are somewhat beside the mark. We think that most of our readers will agree with us that to have a Supreme Council only meeting once or twice a-year, and delegating its functions to a sub or executive Committee, is a very 'Utopian idea,' indeed.

As the time for placing motions upon the Agenda for the next General Meeting of the B.B.K.A. is now past we think that this correspondence should cease.—ED.]

EXCLUDER-ZINC (1966).

[1977.] Some years ago I bought five hives, with excluder-zinc to separate sections from the brood-frames at the sides. Two of these hives had excluder-zinc on the top of the frames also. The result was great loss of bee-life. The poor bees had evidently injured themselves in getting through, and were unable to get back again. I had at that time only English bees, which are larger than Ligurians. Probably the latter would take no harm. Since giving up excluder-zinc I have generally had a hundred pounds of sections per hive. I should think there would be more swarms where zinc is used, and less honey. There should be a bee-space between the tops of bar-frames and the excluder-zinc.

At the beginning of this winter I cut up my excluder-zinc into strips, and placed it across the entrances of my hives from side to side. The bees get through it quite easily. They are all hybrids now, and are probably smaller than they are in summer, when coming home laden with honey. My bees are in perfect health, and there are plenty of them; they have plenty of sealed stores, but are deficient of pollen. The hives are perfectly dry, which they never have been before with narrow entrances at this season.—BEESWING.

COWAN HIVES.

[1978.] For several years I have kept bees, and worked partly on the Cowan plan. I hope 'Useful Hints' is not trying to condemn the Cowan hives as they have no legs. Mr. Cowan recommends strips of wood, six inches wide, under the floor-board, and then stand the hive on four bricks. I have seen the Comptons Lea apiary a great many times, and never seen a hive with legs eighteen inches high, as recommended by 'Useful Hints,' and during the summer I have seen the hives four or five storeys high; I think if the legs would improve the bees that gentleman's hives would be eight or nine storeys high. During the summer up to the present time I have made my hives with strips of wood under the floor-board, and stand them on bricks; I have

never lost a colony of bees through the damp floor-board as my floor-boards are made of one-inch deal board. I find in some of my old hives the wet drives in between the hive and floor-board. The first frame-hive I bought was a double-walled 15*s.* hive, painted. In this hive the wet got through the roof the first winter and killed the bees. Bad luck, I thought, on frame-hives; never mind, I don't give up with one black eye, so I thought I would make my own hives. Up to the present time I have about thirty colonies, most of them in frame-hives, the remainder in straw. The beginning of October I had a straw hive brought one evening; this was a large hive, and no more than half full of comb, and no honey, so with the help of a rapid floor-board feeder, which is not recommended in the *British Bee Journal* to lift the hive, I gave them three pints of thick syrup at 8 p.m., and at 6 a.m. the next morning it was all cleaned out and ready for more. This rapid and late feeding is not recommended, but slow feeding at that late season is worse than useless.—Mid Sussex, *January 7.*

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

Leicestershire. — *Consumption of Stores.* — The strength of the colony has much to do with it. If placed directly over the cluster of an average colony, the cake will disappear in ten or fourteen days.

James Finlay.—*Observatory Hive.*—Instructions how to make observatory hives will be found, among other places in previous volumes, in Vol. XI., pp. 210, 281; in Vol. XII., p. 32. We will bear in remembrance your request.

W. S.—1. *Heather Honey Harvest.*—We will endeavour to remember your desire for information, and endeavour to gratify it, at the time you mention. Your mode of wintering has, we have no doubt, proved very serviceable.—2. *Professor M'Lain's Recipe.*—The instructions given should be closely observed. The food should be given warm, as you would feed with honey or syrup; and the quantity in proportion to the strength, or weakness, of the stocks to be fed.

Tom.—1. *Dampness of Hive.*—Presuming the entrance is in the lower box, the dampness has almost the same effect on the bees as though the stock-box was itself only three inches above ground, as there is a constant change of air drawn from near the earth. 2. *Situation of Hives.*—If not cramped for room, and the bees are not placed so as to deprive them of a direct flight, it should be a decided advantage to so place them. 3. *Removing Bees a Short Distance.*—Yes, and destroy or alter the appearance of all former landmarks at once. 4. *Painting Hives.*—Paint answers in every respect, and is certainly much better than anything in the form of tar about a bee-hive.

F. H. M.—*Honey Imports.*—The following tabular statement will furnish you with the value of honey imported into the United Kingdom during the year 1888:—

January	£465	August	£1,365
February	528	September ..	1,114
March	284	October	1,604
April	2,508	November	3,140
May	2,009	December	3,033
June	1,739		
July	5,820		£23,609

E. M. R.—*Eucalyptic Honey from Northern Australia.*—This honey is a little coarse in flavour, but would no doubt be very serviceable for medicinal uses. It cannot be said to be disagreeable, but it leaves a peculiar taste on the palate. We think there is little probability of this eucalyptus honey being used for table purposes.

Newport, Monmouth.—The bee forwarded was, as you surmise, a queen-bee.

O.—*Candy.*—The bees will not be able to take the candy as you have made it. Somehow you must have deviated from the recipe. It evidently has been boiled too long. It should be softer.

Business Directory.

HIVES AND OTHER APPLIANCES.

Abbott Bros., Southall, and Merchants' Quay, Dublin
Appleton, H. M., 256a Hotwell Road, Bristol.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Burtt, E. J., Stroud Road, Gloucester.
Edey & Son, St. Neots.
Godman, A., St. Albans.
Howard, J. H., Holme, Peterborough.
Hutchings, A. F., St. Mary Cray, Kent.
Meadham, M., Huntington, Hereford.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.
Walton, E. C., 82 Emmanuel Street, Preston.
Webster, W. B., Binfield, Berks.
Woodley & Flood, 26 Donnington Road, Reading.
Wren & Son, 139 High Street, Lowestoft.

HONEY MERCHANTS.

Abbott Bros., Southall, and Merchants' Quay, Dublin,
Baldwin, S. J., Bromley, Kent.
Edey & Sons, St. Neots.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

FOREIGN BEES AND QUEENS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Benton, F., Laibach, Carniola, Austria.
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Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

METAL ENDS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
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Blow, T. B., Welwyn, Herts.
Edey & Sons, St. Neots.
Godman, A., St. Albans.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

COMB FOUNDATION.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Edey & Sons, St. Neots.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.

COMB FOUNDATION MILLS.

Godman, A., St. Albans.

HONEY GLASS MERCHANTS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Blow, T. B., Welwyn, Herts.
Pearson, F., Stockton Heath, Warrington.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

WINDSOR MEETING, 1889.

PRIZE LIST FOR HIVES, HONEY, &c.

To be obtained of J. HUCKLE, Sec. of the B. B. K. A., Kings Langley, Herts.

Exhibits in Classes 1, 3, 4, 5, 6, 7, 8, 9, 10, 11 (sections excepted), must be manufactured by the Exhibitor. Exhibits in Class 1 and in Class 19 to be staged and repacked by the Exhibitor.

CLASS 1.—For the best collection of Hives and Appliances, to consist of the following articles:—One Frame-hive, priced at 15*s.*; one ditto, priced at 10*s.* (*Note.*—These Hives must be fitted with arrangements for Storifying.) One Observatory Hive; one Hive of Straw or other material, not entirely of wood, for obtaining either Comb or Extracted Honey; one pair of Section Crates fitted with Sections; one Extractor, one slow stimulating Feeder, one rapid Feeder; one Smoker or other Instrument for quieting Bees; one Veil, one Swarm Box for travelling, capable of being used as a Nucleus Hive: one Travelling Crate for Comb Honey; five other distinct articles not specified at the discretion of the Exhibitor. Each article to be priced separately. No articles must be added to the collection, nor any portion of the Exhibit removed during the Show. First Prize, 40*s.*; second Prize, 30*s.*

CLASS 2.—For the best Observatory Hive stocked with Foreign Bees and Queen. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 3.—For the best and most complete Frame-hive for general use, unpainted. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 4.—For the best and most complete Frame-hive for general use. The Hive shall consist of (1) a Floor-board on four short legs: two Chambers or Body-boxes, equal in size, similar and interchangeable, both to have porches, with entrances not less than 12 in. wide, that can be contracted at pleasure, each chamber to be capable of holding at least ten Standard Frames, but only one set of Frames with strips of foundation fixed and two division-boards to be supplied. (2) One Case of 4¼ by 4¼ Sections, with foundation fixed and separators, of such size as to admit of its being placed inside the chamber. (3) A substantial Roof, sufficiently deep to cover a case of sections and afford ample protection to the whole Hive, the price of each part, namely, stand and floor-board, body-box, case of sections, and roof, to be given separately, the whole not to exceed 15*s.*, unpainted. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 5.—For the best and most complete Frame Hive for general uses. The Hive shall consist of (1) one Chamber or body-box, containing ten Standard Frames having strips of foundation fixed, two division boards, entrance porch, and floor-board, the chamber capable of being used with a second of the same pattern. (2) One Case of twenty-one Sections, 4¼ by 4¼, with foundation fixed and separators. (3) A Roof sufficiently deep to cover one case of sections at least, the price of each part, namely, floor-board, body-box, case of sections, and roof to be given separately, the whole not to exceed 10*s.* 6*d.*, unpainted. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 6.—For the best Honey Extractor, price to be taken into consideration. First Prize, 15*s.*; second Prize, 10*s.*

CLASS 7.—For the best Honey Extractor, price not to exceed 12*s.* 6*d.* First Prize, 15*s.*; second Prize, 10*s.*

CLASS 8.—For the best pair of Section Racks, completely fitted for use and interchangeable, price not to exceed 3*s.* 6*d.* each. First Prize, 15*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 9.—For the best Feeder for slow stimulating feeding. First Prize, 10*s.*; second Prize, 5*s.*

CLASS 10.—For the best Feeder for quick autumn feeding, capable of holding at least 5 lbs. of food at a time. First Prize, 10*s.*; second Prize, 5*s.*

CLASS 11.—For the best Smoker. First prize, 10*s.* second Prize, 5*s.*

CLASS 12.—For Useful Inventions introduced since 1887. Special Prizes according to merit.

CLASS 13.—For the best 12 Sections of Comb Honey, the gross weight to approximate 24 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 14.—For the best 12 Sections of Comb Honey, the gross weight to approximate 12 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 15.—For the best 6 Sections of Comb Honey, the gross weight to approximate 6 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 16.—For the best Exhibit of Run or Extracted Honey in jars, not exceeding 2 lbs. each, the gross weight to approximate 24 lbs. First Prize, 30*s.*; second Prize, 20*s.*; third Prize, 10*s.*; fourth Prize, 5*s.*

CLASS 17.—For the best Exhibit of Heather Honey (Comb or Extracted), the gross weight to approximate 12 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 18.—For the best Exhibit of Granulated Honey in jars, not exceeding 2 lbs. each, the gross weight to approximate 12 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 19.—For the best Exhibit of Comb and Extracted Honey, in any form, staged on space 4 ft. by 4 ft., height not to exceed 5 ft. above the table. The gross weight of each kind to be stated. First Prize, 60*s.*; second Prize, 40*s.*; third Prize, 20*s.*

The Exhibits in this class to be staged by the Exhibitor.

[A Silver Medal, independently of Money Prizes, will be given for the Exhibit most tastefully arranged.]

CLASS 20.—For the best plan and design for an Apiary of 50 Hives on two or more acres of land, to include a suitable building for extracting and general work. The design to show arrangements for growing Honey- and Pollen-producing plants, attention being given to the value of the crops for other purposes. First Prize, 40*s.* and Silver Medal; second Prize, 20*s.* and Bronze Medal.

CLASS 21.—For the best Diagrams suitable for a Lecture on Bee-keeping, or Technical Lessons in Rural Schools. First Prize, 40*s.* and Silver Medal; second Prize, 20*s.* and Bronze Medal.

CLASS 22.—For the most interesting and instructive Exhibit of any kind connected with Bee-culture not mentioned in the foregoing Classes. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

The Council reserve to themselves the right to publish for Educational purposes any Exhibit entered in Class 20 and 21.

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Editorial, Notices, &c.

HOW TO MAKE AN OBSERVATORY HIVE.*

One of the most interesting and instructive exhibits that can be shown either in the private dwelling or the show-yard is an observatory hive well stocked with bees upon clean and regularly built combs: these latter should have a fair amount of brood in them. Numbers of people who will pass by an exhibit of honey or appliances will at once be attracted by living bees, especially when there is a chance of seeing the 'queen;' the interest thus excited will often be the means whereby another bee-keeper is added to the ranks. Many bee-keepers would like to have such an object in their living rooms, having the entrance and exit through, say, a window: this in many cases can easily be arranged by an intelligent person.

We will therefore give some simple instructions how to construct an observatory hive holding four frames, and also one to hold one frame commonly called an unicomb observatory hive. This latter description is only of use where the bees have not to be confined for any great length of time, but where they have to be kept in the hive for weeks or months the four-comb hive must be used. The unicomb hive is usually kept for the simple purpose of showing the queen, attendant workers, comb, and brood, without any danger to the spectators of being stung, and owing to its limited capacity little scientific investigation can be carried on by its assistance. The bees are rarely seen in a strictly normal condition in so small a hive, and seldom is it safe to allow them to fly from it; but with the larger and more imposing four or more frame observatory hive the bees can be kept in it during the whole of the summer months, and allowed to fly, as with any ordinary frame-hive, though no surplus can be expected from such a colony.

Construction of an Unicomb Observatory Hive.—The whole of the material can be cut from four cut stuff, which should be free from knots and nicely planed. The two sides should be first cut out to the following dimensions and shape:—12 inches long by $2\frac{1}{2}$ broad at top ends, this latter size to be continued downwards to the opposite end for 9 inches; the bottom ends must be $5\frac{1}{2}$ inches broad and tapered 3 inches to meet that portion of the sides that has been cut down to $2\frac{1}{2}$ inches. These two pieces must be clamped together and nicely finished off, that both may be exactly of the same size and shape. You thus have two sides $2\frac{1}{2}$ inches broad to within 3 inches of bottom, but splayed to $5\frac{1}{2}$ inches from this point downwards. Two grooves must now be cut out of the inside of each of these sides from the top or narrow end, and continued to just below where the splay commences. These grooves are for the two glass slides to slip in. A distance of $1\frac{7}{8}$ inch from the outsides of each of these sheets of glass being allowed when cutting grooves, thus providing a space of $\frac{5}{8}$ inch between the insides when the glass is in position. At the top or narrow ends a piece must be cut out $\frac{7}{8}$ inch wide by $\frac{3}{4}$ inch deep for the lugs of the frame to rest on, and at the bottom or splayed end of one piece a $\frac{3}{4}$ inch centre-bit hole should be bored for an entrance. A floor-board must now be cut out of the same stuff $17 \times 5\frac{1}{2}$ inches. The two sides can now be nailed on to this board at a distance of $14\frac{1}{2}$ inches from each other, inside measurement, the splayed ends just fitting the width of the floor-board.

You now have two uprights on a floor-board, these uprights having grooves in the inside edges to accommodate the glass slides. Two pieces of the same stuff must now be cut to the following dimensions:—$14\frac{1}{2} \times 3\frac{3}{4}$, and through each, and equidistant from each other, are to be bored five $\frac{7}{8}$-inch centre-bit holes. These two pieces are to be fitted and placed in position between the two uprights, to extend from the outside edge of floor to 1 inch above where the splay commences; they will each have to have their opposite edges bevelled to fit properly in their position. Over each of the five holes must be nailed pieces of wire cloth, forming ventilators to the bottom portion of the hive under the comb. Having nailed these in position, the glass can be cut out for the sides, and fitted into the grooves. The glass must be flush with the tops of the sides, and extend just below the top edges of the two wooden portions of sides in which are the ventilators. The cover is made from a piece of the same stuff $17 \times 3\frac{5}{8}$. The top side of this should be bevelled, and the underside fitted with fillets to shut right over and close to the ends and glass sides, making all bee-proof. The whole must be well glass-papered, sized, and varnished. Any kind of scentless wood can be used, and of course any description of plain ornamentation can be added. The frame of comb and bees are lowered down between the glass sides, and the lugs of the frame, which must be shortened, rest in the two slots on top of ends of hive, the cover shutting all in snug and tight. The centre-bit hole in the bottom of one of the ends is used to run any more bees in which may be required to increase the population.

To Construct a Four-framed Observatory Hive.—These hives are usually constructed to swing round on a pivot in centre of bottom of hive, and stand so that either side can be turned to the spectator without moving the stand. We will first describe the stand. This must be made hollow for just over half its length. It can be best managed by cutting out a slot from the inside, and affixing a thin piece of wood over the slot. 1-in. stuff must be used, the slot being $\frac{5}{8}$ in. deep. It is through this slot that the bees obtain access to the hive, thus

* We have written the above article in compliance with the request of a correspondent who is desirous to employ his leisure evenings in making an observatory hive.

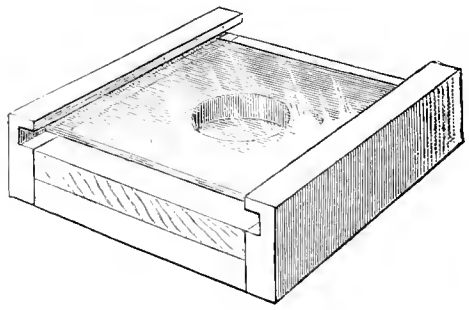
answering the purpose of an entrance. Exactly in the centre of the stand, a 1½ in. centre-bit hole is made, and a piece of strong brass tube inserted, fitting into this hole perfectly tight, and further secured by means of screws. The tube must be flush with the top surface of the stand, and also flush with the underside in the slot mentioned before. The stand must be at least 6 in. broad, and extended to 9 in. in the centre. You thus have a stand with a tunnel running from one end, and having communication at its end through the brass tube at surface in centre. The bottom or thin piece of wood must not be fixed over the under side of the slot until the hive is finished. The bottom board of the hive is made from 1-in. stuff, cut to the following dimensions, 34 × 2½, this receiving the two sides and middle partition, which must be mortised into it for strength. Exactly in the centre of this bottom board, a centre-bit hole must be bored to correspond with the hole in the centre of the stand. Into this a piece of brass tube is fixed, of the exact size of the inside of the pieces of tube fixed in stand, flush with the upper surface of the floor-board, but long enough to come just below the bottom edge of the tube in the stand when floor-board is in position on stand. Into the bottom edge of this tube two holes are drilled, into which a piece of wire is fixed to act as stops, thus preventing the withdrawal of the tube fixed in floor-board when hive is in position. This is the hinge or pivot which allows the hive to be turned in any position without any danger of stopping up the entrance. The sides and middle partition are made of four cut stuff, and without the tenons at end must measure 17⅝ × 9½. The piece used for the centre division must have a small archway cut in the tenoned end just where it partially covers the entrance in floor-board, and on each side two grooves are cut along its entire length at a distance of 1⅝ in. from each other, measuring from their inside edges. The two ends must have corresponding grooves cut, but only on one side of each. These grooves are for the purpose of accommodating the glass slides. The bottom board must also have grooves cut to accommodate the bottom edges of the glass sides. Eight pieces of wood measuring 8⅛ × 1⅝ × ¼ must now be cut out and fixed equidistant from each other between each pair of grooves in sides and centre partition. These are for the lugs—which must be shortened—of the frames to rest upon, and form the inside surface of ends of hive. The tops of each of ends and centre partition must be braced together by means of narrow mouldings tenoned into each. The cover is made in the same manner as the unicomb hive, but should have a ventilator, to be used as occasion requires, in the centre. It is also advisable to make one in each end at top, as often a colony in an observatory hive is obliged to be disturbed, and so excited, when the rise in the temperature consequent on same would be very detrimental to the colony. The glass sides are each formed of two sheets of glass. The frames are placed in position by withdrawing the glass from one side. Ornamentation can be left to the maker's taste, but should always be very plain. This hive must be made of hard wood, as soft wood would not stand the strain at the tenons.

Many of these hives are made with double glass sides, which are an improvement. Others are provided with shutters to keep out the light when not required for observation. All observatory hives must have an outside cover well lined with thick felt.

It is quite possible for an amateur to construct an observatory hive. We saw one at Felton in Northumberland, made by an ex-sailor, which answered admirably out-of-doors during the summer months. The bees must be removed into an ordinary frame-hive during early spring, late autumn, and winter. None but straight combs can be used. It is advisable that these should be prepared specially between separators.

WHITE'S COTTAGER'S SIMPLICITY FEEDER.

We have received from Mr. C. N. White, of Somersham, Hunts, a feeder, to which he has given the name



of the 'Cottager's Simplicity Feeder.' The above illustration will explain its method of action. The bottle, which may be a large one, is placed on a piece of glass, which by means of grooves is slid to its position over the hole; the glass is then withdrawn. The mouth of the bottle is covered with muslin. Mr. White has found this feeder very serviceable among the cottagers in his neighbourhood.

THE WINTER, THE BEES, AND OTHER MATTERS.

By Allen Pringle, Canada.

However the weather may at present be in your islands, we have had here in Canada phenomenal weather so far up to the middle of January. While nominally it is winter, in reality we have had spring temperature nearly the whole time, since winter usually sets in about the first of November. Indeed, during the past nine months Nature seems to have been considerably out of joint in her weather dispensations. A very severe drouth, parching up the living green, prevailed from spring up to the middle of July in a large proportion of Ontario and some of the other provinces. The rains then commenced on the 18th of July, and continued copiously right through to the winter season and right along to the present time, raining all day 9th inst. Succeeded at night by a terrific windstorm, which did much damage, accompanied in one or two of the neighbouring states with a great loss of life—50 to 100 killed and many wounded.

We do not wish our British cousins to get the impression from all this that Canada is not a good place to live in, for I beg to assure them it is. Taking this province of Ontario (which is larger than the United Kingdom of Great Britain and Ireland) as a starting-point, it would be very easy to get into a worse place, travelling to any point of the compass.

The meteorological conditions are as a rule favourable here, and the freaks of weather through the past nine months, sketched above, are quite exceptional. But the weather has been 'gaun gite' of late in more countries than Canada, and the reader will please remember that as regards the American tornadoes, one of which is referred to above, which are so destructive of life and property, we never have them in Canada. They are confined to the United States and the countries

south. This period of rain, rain, rain, which we have had of late we are calling English weather, for we have the impression—whether right or wrong—that there the rain takes a special delight in coming down both in season and out of season.

THE BEES.

How have they fared through all these vicissitudes? And how has the Canadian bee-keeper come out, and our brethren south of us across the lines? The answer to the first is, Not very well; and to the second, They have 'come out of the little end of the horn.' Taking the whole country over, from the Atlantic to the Pacific, and from the Gulf of Mexico to the Ottawa and the Saskatchewan, the honey crop has never been known to be so light per colony, as the past season. In many places, both in Canada and the States, the bee-keepers' returns for the season were *nil;* in others less than nothing, as the bees had to be fed both for summer and winter. In some localities there was a splendid crop, and in some larger areas a fair or moderate yield.

But it's an ill wind that blows no good. Two good results will follow this general failure of the honey crop in America the past year or two. Prices, which had been going down to the non-paying point, are enhanced to something like a paying and profitable basis, and may remain so, should the producers exercise more judgment and discretion in future in selling, and a little more tact and activity in creating and developing a home market. That is the first good result; the second is, that the notion, widely prevalent amongst the uninformed, that honey—especially comb honey—can be artificially manufactured without the intervention of the bees at all, is being dissipated, as it is found that none of this artificial product now makes its appearance. Now is the time, if any, in the scarcity, for the mythical sweet to 'materialize.' The nefarious business would now, if ever, pay handsomely.

PRESENT CONDITION OF BEES AND THE PROSPECTS.—In Canada bees are mostly wintered in cellars, except amongst the 'old-timers,' who still cling to the 'old box hive,' and leave their bees standing out all winter on summer stands. The English reader may wonder why, in our usually severe Canadian winters, the bees so exposed do not die off. It is a mystery, but my explanation is this: In the first place, the extractor cannot reach them, and the consequence is, as the hives are usually large, there is an abundance of bees and of good, well-capped honey on hand in the fall with which to face the winter. As the after-swarms and weak colonies are 'taken up' in the fall, only the strongest are left for winter. In the next place the tops of the hives and all openings except the entrance are hermetically sealed with propolis, thus preventing the upward escape of the heat. And finally, the stores are properly *located* in the hive, above and laterally surrounding the cluster, rendering access easy and conserving the heat. The naturally built combs in box-hives where no foundation or artificial guides have been inserted I have frequently noticed, in very old colonies which had braved many a hard winter, to converge more or less regularly from the four sides of the hive to the centre, when there would be more or less of an open space left for clustering. These are, in my opinion, the chief reasons why the box-hive bees manage to get through a winter in the open air without special protection when the thermometer is perhaps half of the time for two or three months below zero. The present condition of the bees outside and in is apparently all right so far from inquiries in different directions. But the critical time is yet to come, and I anticipate considerable loss of bees before the first of May from two causes, one of them usual enough, the other special and unusual. The one is deficient stores; the other, granulated honey. Storage of winter stores usually follows a failure of the honey-crop, as the feeding is generally inadequately done. The comb honey of the past season has been granulating both inside the hives and in the store-rooms and shops to an extent never before known, at least, in my long experience. I would like to know if this also has occurred in trans-Atlantic countries. Of course the bees cannot live on candied honey, and I fear fatal results in many places. In cases even where the apiarist was cognisant of the evil in the fall, and thought he had made all safe by removing the candied frames and substituting the normal ones, there is still danger, for the granulation has been going on even in warm cellars, while in lower temperatures it has no doubt been worse. Wherever there is any suspicion of the evil, whether in a Canadian or English yard, an examination ought to be made. In warm repositories a supply of *water* might do much good. This can be readily done by placing a piece of wet sponge in the entrance, when the bees, if in need of water, will soon sip it up.—*Selby, Ontario, Canada, January 15th.*

ASSOCIATIONS.

BERKSHIRE BEE-KEEPERS' ASSOCIATION.

The Annual Meeting of the above Association was held on Wednesday, the 30th ult., at the Victoria Café, Reading. The Rev. R. Errington, Vicar of Clewer, occupied the chair, and amongst those present, in addition to those at the previous meeting, were Messrs. Bance, Harrison, Hallam (Theale), Bristow, Veysey (Sulhampstead), Alfred Hill, C. Prior (Wokingham), Minchin (Ascot), Robbins (Wargrave), F. Woodley (Chilton), Fry (Caversham), Flood, Ward, Tabor, Dearlove, Attwood, Holden, Miller (Reading), &c., &c.

After a few introductory remarks from the Chairman, the Hon. Secretary read the Annual Report.

The Report stated that although the year 1888 has been one of the worst in living memory in regard to the honey harvest, it has been a most important and eventful one in the history of the Association, for in it several important departures have been made from the usual methods of working this and kindred associations.

As regards membership, against a decrease of 28 in 1887, we this year report an increase of 70 members, the membership now being considerably larger than at any previous period, while the subscriptions for the year amounted to 13*l.* 8*s.* 6*d.* in excess of those for 1887. Against a cash deficit of 8*l.* 7*s.* 6*d.* in 1887, the receipts this year exceed the expenditure by 6*l.* 12*s.* 3*d.*

The Committee refer with great satisfaction to the good work that has been accomplished at Abingdon and Maidenhead, also to the wide expanse of country having Newbury for its centre, that has been covered with district organizations.

W. H. Dunn, Esq., of Templeton, Hungerford, and Major-General Davies, of Lowood, Maidenhead, have become Vice-Presidents during the year.

The Committee record the working out of the Honey Sales Scheme. A very artistic label has been designed for the special use of members; a register has been commenced, so that the produce of any particular honey may be identified, if desired; and agents have been appointed at Reading, Maidenhead, and Windsor. The fuller development of this scheme has only been delayed in consequence of the very bad harvest.

The only show held during the year was in connexion with the Windsor District, which, in consequence of the bad honey season and the unfavourable weather at the time of the show, did not prove the success it would otherwise have been.

The Expert has again made his spring visit to the apiaries in the county, calling this year upon every member of the Association. The Bee Tent has been

taken to many of the various shows in the county, and has been the means of doing good work for the Association.

The Report congratulates the members on the result of the work of the Association during the past year, and in its greatly improved position both in regard to its present standing and to its future prospects.

Copies of the balance-sheet had been distributed, and it was consequently taken as read.

The Chairman briefly proposed, and Mr. Cartland seconded, the adoption of the report and balance-sheet, which was carried unanimously.

The President (H.R.H. Princess Christian) and the Vice-President were re-elected, on the motion of the Chairman.

The Chairman proposed the re-election of Mr. Cooper as Hon. Sec., which being seconded by Mr. Webster, was carried unanimously.

Mr. Cooper said that he would have pleasure in acting again, and anticipated even greater success during the present year than in the past.

The Hon. Treasurer (J. Simonds, Esq.) was re-elected on the proposition of the Rev. V. H. Moyle, seconded by Mr. Darby, and the Librarian (Mr. F. Cooksey) on the proposition of the Hon. Sec., seconded by Mr. Carter.

Mr. Darby proposed Mr. A. D. Woodley as Assistant Secretary and Expert. He did so on the understanding that Mr. Woodley accepted the office of Expert *pro tem.*, the new rules providing for two offices.

This being seconded by the Rev. V. H. Moyle, was carried unanimously.

Messrs. Cooper and Carter, proposed by Mr. Cooksey and seconded by Mr. Turner, were elected County Representatives to attend the quarterly meetings of the B.B.K.A.

The Hon. Sec. proposed the Committee for the year as follows:—Rev. D. O. Harrington (Burghfield); Rev. R. Errington, Messrs. W. Carter, G. P. Cartland, W. S. Darby, Windsor; F. Cooksey, P. H. Turner, Reading; Albert Hill, Wokingham; E. Church, P. Hopson, A. Stradling (Newbury); Mrs. Porteous (Ashampstead), and the Hon. District Secretaries.

Mr. Ward seconded, and it was carried unanimously.

Some slight alterations of the rules were made.

This concluded the business of the Annual Meeting.

At the conclusion of the business meeting Mr. T. B. Blow, F.L.S., gave an address on 'My Experiences among the American Bee-keepers.' The address was delivered with his usual fluency, and excited much interest.

Mr. Turner proposed a vote of thanks to Mr. Blow for his most interesting address, and remarked that, as that gentleman had stated that Professor Cook intended visiting England during the year, it would be a great pleasure if he was enabled to use his influence to induce that distinguished apiarian to pay them a visit, which was seconded by the Rev. V. H. Moyle.

The resolution was adopted, and Mr. Blow briefly responded.

LEICESTERSHIRE BEE-KEEPERS' ASSOCIATION.

The Annual General Meeting of this Association was held on Saturday, January 26th, in the Mayor's Parlour, Old Town Hall, Leicester, at 2.30 p.m. The day was beautifully fine, but either apathy or despair, or perhaps both, had made such havoc with bee-keeping enthusiasts that less than a score found courage to put in an appearance.

Mr. Councillor Bowles was voted to the chair. The following report was read:—

On all sides, and in almost all honey-producing counties, reports are current that for bee-keepers the season of 1888 has been the worst on record; in fact, as far as honey-production has been concerned, a dead failure. Your committee regret that they cannot congratulate Leicestershire bee-keepers on being an exception to the general disaster.

In 1886, at the Leicester Show, 1700 lbs. of honey were placed on the stage for competition in the four classes for honey; in 1887, at Ashby-de-la-Zouch, 1500 lbs. were similarly staged; but at the Leicester Show of 1888 only 68 lbs. were sent for exhibition. These facts speak for themselves, and leave no doubt that bee-keeping, both for pleasure and profit, has received a serious check. Numerous withdrawals from the subscription list testify to the discouragement the universal failure of the season has produced. As, however, a second season so bad can hardly occur during the present generation, your committee hope the defections will not be permanent. The Show at Leicester (honey classes excepted) was, as usual, a success; the exhibitions of bee-keeping appliances by Messrs. Meadows, Redshaw, and others, were complete and very attractive. The bee-tent, too, was well patronised. The silver medal of the British Bee-keepers' Association was not awarded. The bronze medal was awarded to Mr. W. P. Meadows, of Syston. The certificate fell to the lot of Mr. J. Cooper, of Belgrave, who was also the fortunate winner of the hive and bees drawn for according to Rule 8. The judge, Rev. E. Bartrum, D.D., of Wakes Colne Rectory, Halstead, Essex, was appointed by the British Bee-keepers' Association. The expert paid a spring visit, calling on 240 bee-keepers, and seeing 1400 hives. The funds did not admit of an autumnal visit. The annual show in 1889 will be held at Melton Mowbray. When on a previous occasion the show was held there, the exhibits were almost wholly from local sources, a state of things, in the interest of the Association, to be highly deprecated. Bee-keepers, therefore, in all parts of the county are earnestly requested to prevent its recurrence.

At the general meeting in January, 1888, donations to the amount of nearly 2*l.* were paid on the spot, with a view to reduce the balance due to the treasurer. Notwithstanding this effort, the balance is again on the wrong side of the books. The expenses of the lectures and of two new flags may be, however, cited as a set-off against this unsatisfactory state of affairs.

Thanks are here tendered to the council of the Leicestershire Agricultural Society for their liberal grant; to Mr. J. T. Ardron for his courteous assistance and attention to the wants of the Association at the show: Messrs. Meadows, Redshaw, Carter, J. Cooper, Day, Munday, Adkins, Rev. M. A. Thomson, Miss Chester, and Mrs. Ball, for their praiseworthy efforts in the interests of the Association. To Miss Cooper special thanks are given for the beautiful flowers with which the tables were decorated.

No discussion arising, the routine business of election of committee and officers was proceeded with forthwith. Messrs. Bowles, Widdowson, Saunders, and Rev. A. M. Rendell were elected in place of Messrs. C. Foxon and Ward, resigned; and Messrs. Bickley and Day, who have become *ex officio* members. The other members were re-elected. A letter from the auditor (Rev. A. M. Rendell), tendering his resignation, was read; his resignation was accepted, and a special vote of thanks accorded to him for his past services. The Secretary was directed to ask Mr. J. Day, of Wymondham House, Oakham, to take the office of auditor. A favourable reply has since been received. Votes of thanks were accorded to the Leicestershire Agricultural Society for its liberal support, to Mr. Ardron for his courteous assistance, to the Mayor for the use of the room, to Messrs. Atkins, Munday (expert), Ball, and Mrs. Ball for their services. Gratuities were granted to the Secretary and hall-keeper as usual.

Mr. W. P. Meadows then read an 'In Memoriam' in respect of the death of Mr. William Raitt, of Blair-

gowrie; at the close of which the Secretary was directed to write a letter of condolence to Miss Raitt, sister to Mr. Raitt.

Mr. Meadows then read an admirable paper on 'Feeders and Feeding,' for which he was heartily thanked; the Rev. M. A. Thomson, who had also undertaken to read a paper, did not appear, owing to a misunderstanding with regard to the date of the meeting.

In a conversation which followed it was suggested that at the next show bar-frame hives for manipulation should take the place of skeps. Lectures, too, were talked of, but nothing definite settled.

The meeting closed with a vote of thanks to the Chairman.

NOTTS BEE-KEEPERS' ASSOCIATION.

The annual meeting of the Notts Bee-keepers' Association was held on Saturday, the 26th ult., at the People's Hall, Heathcote Street, Nottingham. Ald. Manning, J.P., presided, and among those also present were—the Rev. F. G. Slight, Woodborough; Messrs. R. J. Turner, Radcliffe; W. F. Newman, Calverton; D. Burnham, Flintham; G. Hayes and A. G. Pugh, Beeston; J. Pollard, Woodborough; Frank H. K. Fisher, Farnsfield (hon. sec.), &c. A letter had been received from the president of the Association (Viscount Newark, M.P.) regretting his inability to be present.

The report of the committee, read by Mr. Fisher, expressed satisfaction at the improvement in the position of the Association, as shown by the increased number of members, there being now 83 as compared with 62 in 1887. The increase had been chiefly among cottagers, evidencing that the Association was carrying out the chief object of its existence—the benefit of the cottage bee-keeper. The annual show of the Association was held at Sutton-in-Ashfield in connexion with the Sutton Horticultural Society's Show on July 23rd. Owing to the very bad season, however, there was but little competition. The silver and bronze medals of the British Bee-keepers' Association were offered for competition, the former being won by Mr. Silver, of Retford, who was also the winner in 1887, and the latter by Mr. A. Simpson, Mansfield Woodhouse. The judge appointed by the British Bee-keepers' Association was Mr. W. Martin, of Wainfleet, who, in addition to judging, examined four candidates for certificates as experts. It was gratifying to know that at this, the first examination in Notts, all the candidates, Messrs. Fisher, Rawson, Silver, and Simpson, passed. The Secretary made a tour amongst the members as far as practicable in the autumn; and now there were four of the members holding certificates as experts it was thought the best thing that could be done would be to arrange for spring and autumn visits to all members who might wish it. The committee regretted that Mr. Fisher, the hon. secretary for the past two years, was unable, owing to other engagements, to retain the office. The balance-sheet showed receipts amounting to 25*l.* 10*s.* 6½*d.* After allowing for various items of expenditure, there remained a balance due to the treasurer of 2*l.* 16*s.* 3½*d.*

The Chairman congratulated the members upon the improved position of the Association. He had much pleasure in moving the adoption of the report and balance-sheet.

The Rev. F. G. Slight seconded the resolution, which was agreed to.

On the proposal of Mr. D. Burnham thanks were accorded to the officers for their services during the past year.

Mr. Newman moved the election of Mr. Fisher as a life member of the Association, in consideration of his past efforts as secretary. The resolution was unanimously adopted.

Viscount Newark, M.P., was re-elected as president, with the Duke of Portland, Lord C. C. Bentinck, Mrs. Robertson, Mr. Ald. Turney, J.P., Mr. Ald. Manning, J.P., and Mr. Mansfield-Parkyns, as vice-presidents for the ensuing year. The committee having been appointed, Mr. A. G. Pugh was chosen as hon. sec. in place of Mr. Fisher resigned, and Mr. W. F. Newman was elected as treasurer. Mr. G. Hayes, of Beeston, consented to act as secretary for the Nottingham district.

The drawing for hives, &c., afterwards took place, the proceedings being brought to a close with a vote of thanks to the chairman.

GLAMORGANSHIRE BEE-KEEPERS' ASSOCIATION.

The annual general meeting of the above Association was held at Cardiff on Thursday last, Jan. 24th, under the presidency of C. F. Gooch, Esq. There were present, among others, the Rev. L. Usk Jones, Messrs. Lascelles Carr, A. H. Sims, W. Gay, John Beer, E. J. Gibbins, W. H. Jenkins, W. Williams, E. C. Blackmore, A. Pettigrew, and D. P. Davies, hon. sec. The hon. sec. read the report and balance-sheet for the year ending Dec. 31, 1888, which, considering the unfavourableness of the past season, was very satisfactory. The following gentlemen were elected officers for the current year:—President, J. T. D. Llewellyn, Esq., Penllergare; Treasurer, G. Abraham, Esq., National Bank of Wales, Aberdare; Hon. Sec., Mr. D. P. Davies, 17 Commercial Street, Aberdare. Committee—Mr. C. F. Gooch (Chairman); Messrs. A. Pettigrew, Wm. Williams, E. C. Blackmore, Lascelles Carr, and W. Gay, Cardiff. Rev. L. Usk Jones, Llandough Rectory, Mr. John Beer, Wenvoe, Mr. E. J. Gibbins, Neath, Rev. Z. P. Williamson, and J. Muir, Margam; Messrs. W. H. Jenkins and S. F. Thompson, Swansea, A. H. Sims, Navigation, and E. Thornton, Bridgend. Two hives were drawn for, the successful members being Mrs. Knight, Tythegston Court, and Mrs. Heard, Machen House, Machen.

Mr. E. C. Blackmore having read a very interesting paper on 'Bee-keeping' (which was published *in extenso* in the *Weekly Mail* for Saturday, February 2), a vote of thanks was passed him.

The usual votes of thanks having been proposed and carried, one of the pleasantest and largest meetings of this Association was closed.

NORTHAMPTONSHIRE BEE-KEEPERS' ASSOCIATION.

The annual meeting of the Northamptonshire Bee-Keepers' Association was held on Saturday afternoon, February 2, in All Saints' School-room, Northampton—the average number of members present. Mr. A. T. Adams, Crick, presided over the meeting and called on the Secretary for the report for the past year, which was read and adopted as follows:—

'In presenting this, the sixth annual report, your Committee have much pleasure in stating that the Association is at last free from debt, with the bee-tent and other appliances to the good. This desirable end has only been obtained by the exercise of the strictest economy for the last four years, and by the curtailment of all unnecessary expense. The past season was most disastrous to both bees and bee-keepers. The late and cold spring, followed by a cold and wet summer, produced little or no honey, and bees were starving in the middle of summer. Owing to the unsatisfactory way in which the *Bee Journal* was circulated, your Committee made an arrangement in March, by which, instead of the *Bee Journal*, the new publication, the *British Bee-keepers' Adviser*, was sent free to every member who desired it, direct from the publisher, and it became the sole property of the member. This arrangement has so

far worked successfully and given great satisfaction. The annual show was held on the Race-course, Northampton, on July 19 and 20, in conjunction with the Horticultural Show. On account of the bad season, the show of honey was very small. The silver medal of the B. B. K. A. was awarded to Mr. C. Cox, Brampton, for section honey; and the bronze medal for extracted honey to Mr. O. C. Hollis, Boughton. The thanks of the Association are due to Mr. A. T. Adams, Mr. Collins, Mr. Cox, and Messrs. Johnson and Wright, for the prizes they gave for competition. A good collection of hives and appliances was exhibited, and quite filled the tent, by Mr. A. T. Adams, Crick; and Mr. W. Bazeley, Northampton, both exhibitors being highly commended by the judges. Mr. J. R. Truss, Ufford Heath, very kindly lectured and manipulated in the bee-tent with bees lent for the occasion by Mr. A. T. Adams and Mr. C. Cox. The number of members for 1888 was sixty-five, against sixty-eight in the previous year.'

Mr. J. Francis (Hon. Treasurer) produced the balance-sheet for the past year, which shows a small balance in favour of the Association. This, Mr. Francis explained, was the first time since the Association was formed that it was free from debt, and at the time he undertook the Treasurership, between four and five years ago, the Association was in debt 40*l*. A vote of thanks was passed to Mr. Francis for his past services, and an unsuccessful attempt was made to induce him to be re-elected Treasurer for the ensuing year. W. H. Foster, Esq., Spratton Grange, was elected President for 1889, and the following gentlemen were then elected as the Committee:—Rev. J. Phillips, Weston Favell; J. Rooke, Esq., Weldon Grange; Messrs. A. T. Adams, Crick; W. L. Bird, Daventry; H. Collins, Berry Wood; T. E. Adams, Culworth; C. Cox, Brampton; J. R. Truss, Ufford Heath; E. Adams, Spratton; W. E. Stimpson and H. Reynolds, Northampton.

Mr. Robert Hefford was re-elected Hon. Secretary, and Mr. G. E. Atkins, Kingsley Park, Northampton, was appointed Hon. Treasurer. Votes of thanks were passed to the retiring President (P. Phipps, Esq.), to the Manager for the use of the school, and to the Hon. Secretary.

YORKSHIRE BEE-KEEPERS' ASSOCIATION.

The Annual General Meeting was held on the 2nd inst. at the Church Institute, Leeds, Mr. Dodgson (Hon. Sec. Craven Branch B.K.A.) in the chair. There were also present (amongst others) the Secretaries of the Ebor and Horsforth Branches. After the transaction of the usual business, and the passing of the accounts for 1888, an interesting conversation took place on the subject of the B.B.K.A. and affiliated Associations, the Hon. Sec. explaining the position in as unbiassed a way as possible, the feeling of the meeting being unanimous that the parent Society should give one representative from each affiliated Association recognition as an *ex-officio* Member of its Committee of Management in a manner similar to that of the Y.B.K.A., whose Committee embraces the Hon. Sec. and another member of every subscribing Branch. A resolution to this effect was proposed by Mr. Burniston (Hon. Sec., Horsforth), seconded by Mr. Jamieson (Hon. Sec., Ebor), and carried *nem. con.* The Secretary (R. A. H. Grimshaw) reported that the Y.B.K.A. was financially much stronger than in the previous year, although weaker in the number of its subscribers. This was attributed to outstanding subscriptions. It was expected that a new hive, specially constructed for the Association by Mr. W. Dixon, would be exhibited, but, although the hive is built, the desire was abortive. Mr. Henderson (Horsforth B.K.A.) was prevented by affliction from reading a paper he had kindly consented to prepare. The subject of open prizes was then introduced by Mr. Jamieson, and was discussed, the consensus of opinion being that it was unwise for any Association to throw its prize-list open to all comers unless its financial position were a strong one.

Mr. W. Lees MacClure, J.P., of Whiston, Hon. Secretary of the Lancashire and Cheshire Bee-keepers' Association, has been elected County Councillor of the Prescot division.

Refining Bees'-wax.—Bees-wax is refined so as to clear it from all foreign substances by melting the wax with about four or five per cent of water in a bright copper boiler, preferably heated by steam, and, after the whole is perfectly liquid, and has boiled for some minutes, withdrawing the heat and sprinkling over its surface a little oil of vitriol in the proportion of about five or six fluid-ounces to every hundredweight of wax. Great care should be used else the melted wax will froth up and boil over the sides of the pan. The acid should be well scattered over the surface. The melted wax is next covered over and left some hours to settle, when it is carefully drawn off for moulding without disturbing the sediment.—*New York World.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

APIARIES ON WHEELS.

[1979.] When the above heading meets the eye of most bee-keepers, I fancy they will be somewhat inclined to smile. For a considerable time I have been of opinion that apiaries constructed on the migratory principle would be of great service to bee-keepers in this country. We read that in olden times bee-barges or rafts were placed on the Nile, and at a more recent date on the Mississippi, and other rivers. The flower bloom was followed by the industrious bee-keeper, with his busy colonies. Also in the days of that observant historian and naturalist, Pliny, he says the practice was in vogue among his countrymen of having floating apiaries on the Po, and other Italian rivers. They knew by the sinking of the raft to a certain depth in the water that the hives were filled. They were then carried back to their former homes, and the honey taken out. This practice appears not to have come into favour, as it is now rarely attempted. No doubt the home of the bees being on the water would account for the failure. To obviate the failures of antiquity and the mishaps of the Mississippi, I venture to propound this theory, which I am confident in careful hands will work well. We should adopt the travelling caravan style of apiary—simply a bee-house on wheels that can easily be shifted from one district to another. Among the many advantages which might be claimed for moveable bee-houses, I shall here only mention four, viz.: (1) The annual taking of bees to the heather is now recognised as a profitable source of income. Those, like myself, who have had experience in this way, know the laborious work of packing up, loading and unloading the hives in any conveyance, and only a few hives can be taken at one journey. (2) When the hives are placed at the heather there is often the danger of them being upset with animals, or of being tampered with by malicious

persons. (3) Which of us, when on our rambles, has not seen some favourite spot, specially rich in bee-flora, enviable to apiarians because their bees were not in reach of it. (4) Should foul brood happen to break out in our apiary, the safest plan is to convey the healthy stocks to a distance. From the four points I have adduced, I hope I have made out a good case for the travelling hive system; and, doubtless, experts will be able to add to or controvert them. But it is apparent with what ease stocks could be taken to the heather, or any district, while all would be secure under lock and key. Any size of bee-house could be made, but one to hold twenty-four hives would be found most suitable. This would require to be 10 ft. × 6 ft. 6 in. × 6 ft. high at sides, and 6 ft. 6 in. high in centre, inside measure. The probable cost would be 12*l*. There are chances of buying a secondhand furniture van, or a lorry that with some labour could be made into a suitable house. The cost may be objected to by some, but by calculating twenty-four hives of a substantial weather-proof make at 15*s*. each, the amount is 18*l*. A bee-house of twenty-four hives could be fully equipped for the same amount. I purpose at no distant date to have the above style of apiary put into practice.—Wm. McNally, *Glenluce*.

SITUATION OF HIVES, AND HIVE-MAKING.

[1980.] I am very glad this subject has been taken up by two such able writers as Messrs. Sharp and Simmins, because I believe it has been generally understood that the nearer the entrance was to the ground the better the hive. When I first began bee-keeping I thought such was the case, and acted accordingly, but I soon found it not so advantageous as I thought; in the first place I did not like the look of them, and in the second it was such a bother to pack them up, and to keep clean and dry and free from weeds and rubbish. I next tried three with legs fixed outside about 10 in. from the ground; they are very well in some respects, but require a good deal of attention to keep the wet out of the joint, and to look well. My next venture was to frame the hive on 2-in. square legs 2 ft. 4 in. high, boarding 18 in. down and leaving 10 in. bare for stand, with a 9-in. board inside front and back, thus making a double-walled hive, at least front and back, frames being right-angled; the floor-boards moveable, held by iron ledges, secured to legs inside, and having four set screws, a turn or two of which enables the board to be drawn out or lowered to any pitch at pleasure. The hive is very compact, plinths, and projections of any kind, being avoided, and having a good porch, the alighting-board is always dry and clean.

This winter I have been endeavouring to embody as many advantages as I could from my own experience, and the ideas picked up from the *Journal*, and have made four hives, framed in the same way as the others, only square and with moveable body boxes to contain ten frames, so that if I wish to move the bees from one situation to another I can do so without removing the whole hive, and so keeping the general appearance of the apiary the same, which I think is very desirable in a limited area. This kind of hive is easy to make, and, with a nice roof, very effective; it does not require very elaborate tools, and that is a great point with the amateur. I should be glad to see amateur hive-making taken up more in the *Journal*, I think it would be very interesting and instructive to others as well as—The Village Blacksmith.

HONEY AS FOOD.

[1981.] From a paper read by Dr. Vance we present the following on the superior adaptation of honey to the human system as compared with cane-sugar:—Honey is a physiological sweet; in other words, its constituents are such that it is absorbed into the blood without undergoing chemical change. Such is not the fact with sugar. Sugar is not as susceptible of absorption and assimilation as honey, for it requires the action of the gastric juices to split or invert its elements, the muriatic acid element of the gastric juice being the chief agent in this chemical transformation. After this change occurs, absorption takes place. If in any way it is hindered, or if, on account of an excess of sugar above the capacity of the gastric juice to transform, there remains a residue, the result is decomposition into elements that irritate and inflame the mucous membrane of the intestinal canal, producing numerous ailments. Think of the legion of little ones who have been the victims of their fondness for sweets, and who so frequently suffer from gastric troubles, which are, in a large degree, the result of sugar indigestion.

The importance of sugar as an element of food may be inferred from the large proportion of the elements of our food which is transformed by the action of the digestive organs into the constituents of sugar. Consider the proportions of bread, potatoes, and vegetables that we consume daily, all of which must undergo this saccharine change before they are appropriated by the human system; it may give an approximate idea of the amount of these elements required to nourish our bodies.

If, therefore, the saccharine comprises so large a part of the elements of our food, does it not become an important question as to what form of sweet is the most important and healthful for the nutrition of our bodies? I think you will agree with me that honey is the most important and the most healthful, because it is absorbed into the system without change, and because, unlike sugars, it does not easily undergo fermentation. The formic acid, which is an ingredient of honey, prevents chemical change, and the morbid processes arising from decomposition of sugar.—*The Bee-keepers' Guide*.

A REAL ORIGINAL.

A BRIEF SKETCH OF HER DOINGS AMONGST BEES.

(*Continued from page* 55.)

[1982.] Being favoured with a fine morning, and hoping to find bees busy swarming, I again turned my steps to my friend's garden, where I found her all anxious, having had a swarm as early as nine o'clock, and other stocks looking likely. After the usual exchange of compliments, and noticing a cheerful countenance, I let go a little more as I thought to cheer, but, as it happened, of short duration. Heavy, threatening clouds came over soon, which appeared as though they might have stayed further swarming for the day, but not so fortunately, so I prolonged my stay and saw a second swarm issue.

'Now, Mrs. W., this is better weather for the bees; this will suit you.'

'Yes, sir, it's a bit better this morning, but there's no telling how long it will last; my glass don't go up, and she's pretty true.'

Noticing that the swarms, after being hived, were left on the spot and carefully protected from the sun, and the branch upon which the swarm had settled had been well deluged with water, I suggested if it might not be better to at once place the swarm upon the stand intended for it. My suggestion was new, and great doubts were expressed as to such being at all safe.

'No, sir, I should not care to follow your plan; yours may be better than mine, but that's always been my way, and my mother and father's before me. I should have half the bees go back to their old hive again perhaps if I done as you say, and I don't stand need to have that risk; its work enough to get 'um once, I don't want double trouble. You'll excuse me, sir; no doubt you know better than me.' (It certainly did not appear so.)

'Just try one swarm, Mrs. W., as I suggest, and see if you do not find it best. You would thus finish your work as you go on.'

Here our talk was interrupted by a visitor, and my friend being obliged to leave for a short time, asked if I would do her the favour of keeping watch until her return. Having expressed my willingness, I was placed in position, with full view of both gardens; a broad hint as to the great charge I had undertaken by a remark, 'You'll have to look about three ways at once. You see many on 'um looks like being off. There's them four hives cross there, you see, looks like rising. Howsoever, I will soon be back.'

'All right, Mrs. W., I will do my best. Don't hurry yourself.'

My services, however, were not long required, and I was relieved after being warmly thanked. Then followed a deep sigh, with a doleful remark that swarms would be few this year, and no honey.

'Do you remember how many swarms you had last year, Mrs. W.?'

'No, sir, I don't bear it in mind. I took up twenty-seven lots last year, and you know how many I had when you counted them.'

'Yes, I do, Mrs. W. There were seventy-nine, making your winter loss one stock, the smallest percentage I ever knew; and, as I have remarked to you more than once, it speaks well for the attention you give to your bees. Few bee-keepers can boast of so small a loss. I notice your hives stand fairly level, do you ever notice the direction the combs are built? What I mean is, have you noticed if the combs are built at all straight, say, from the entrance to back, or crossways, or how?'

'No, sir, I haven't took that notice in particular, but they don't build very straight as a rule, I think; but my opinion is they wouldn't go straight from the entrance, as the wind would blow right in, and make the hive cold. It stands to sense the bees wouldn't like that. I always shade the mouth as much as I can from wind, and, as you see, I don't give them much of an entrance.'

'Yes, I see that, Mrs. W. Would you object to my looking at a few of the hives just to see how the combs are built?'

'Yes, sir, I should.'

'Why?'

'You'd have to lift the hive up to see that, and I shouldn't like my bees disturbed like that.'

'Oh, it would not disturb the bees, Mrs. W.!'

'Maybe you think so, but I think different. I never let anybody meddle with my bees. What's it matter how they build the comb as long as they do build it, and put plenty of honey in it?'

'Yes, we like the bees to build plenty of comb, and store plenty of honey; but don't you think it's much better to get the bees to build their combs straight, if possible?'

'You said, "if possible;" but how is it possible? that's it. I don't think you can make bees do what they won't, clever as you may be, sir.'

'Well, I won't say we can always ensure perfectly straight combs being built in straw hives, but I may tell you that by fixing the stands perfectly level before placing the hive upon it, bees will more generally build their combs straight, and will be less likely to fill the hive with irregular and curved combs.'

'Perhaps so, but I have never tried it particular, and so can't say, but my stands are pretty level considering.'

'Would you mind me looking in at the top of those hives which have an opening?'

'Yes, I should, sir. I shouldn't like any one of 'um disturbed; besides, you couldn't see much. The bees would be up directly.'

My hopes of making some observations on comb-building in skeps with such a big lot were thus cut short, much to my regret, my only chance left to try to arrange to be in at the death—taking-up time. This I did, and I hoped to save a good lot from the sulphur fumes or chloroform. The latter is preferred by my friend when taking her bees. On my remarking upon the care required in using chloroform when about such busy work, it caused a smile, with a reply, 'Yes, sir, I am aware of that; but, you know, I have passed some years, and should know what I am about.'

After a lengthy chat about the cruel practice of destroying bees, and the advantage of driving and uniting, I suggested my giving a practical lesson, which, after a deal of consideration, it was agreed I should do. All made ready for business, a stock (the worst of the lot) was selected for me to operate upon. With a keen eye to learn all, my friend watched progress. The queen was quickly on the move, I remarked, 'There goes the queen.'

Mrs. W. having satisfied herself of the fact, I was requested to stay. She had seen enough, and could do that work herself all right if she took to it; thanked me for the trouble I had taken, and very quickly replaced the stock on its stand, a doubtful expression evident on her countenance, speaking as it were, 'How will them bees go on now after that tourowing?' but she ordered the village blacksmith to make a set of driving irons, and possibly may one day use them. The uniting part of the work was left, the danger of causing fighting, robbing, losing themselves, getting in a wrong hive, or going away altogether, was put forth to do battle against a trial.

Being anxious to have the opportunity of securing a few lots of these bees, I offered to drive any at the close of the season that might not be wanted if I could have the bees for my trouble. This brought the question, about what price would I be willing to give, as they should be worth a little? Of course I could hold out no hopes on that point, so the matter was left to the time of taking, hoping then to have the pleasure of gratifying myself to some extent.—R. R. Godfrey.

(To be continued.)

CHLOROFORM IN THE APIARY.

Prevention of Increase—Introducing Queens—Uniting and Moving Bees.

[1983.] The past season many articles have appeared in the various bee papers, written by some of the most extensive and most experienced bee-keepers of the day on the important subject, 'The prevention of increase in working for comb honey.' The sum and substance of all that has been written is to give plenty of room to a colony to prevent them getting the swarming fever, and the vigorous use of the extractor to deprive them of the swarming fever after they get it.

In my opinion the prevention is better than the cure by a long odds. This extracting of nice sealed honey out of the brood nest (which makes the best of winter stores) is something I could not tolerate, to say nothing about the amount of extra work for nothing, when a much easier and simpler method will do.

The swarming fever appears to be and is the great trouble to get over when the bees once get it. The best, the easiest, the quickest, and the cheapest way to cure that fever is by the use of chloroform given to them by the smoker just at dark when the bees are nearly all in the hive, to be given to them till they lie like dead bees upon the combs, or till not a bee will fly when the honey board is taken off and the hive kicked.

Two years ago last June I treated a colony just as I have described. They had their first queen-cell capped and would have swarmed the next day. The morning after drugging they went to the fields as usual, apparently none the worse for the dose. Upon examining them in

the evening, twenty-four hours after the drugging, the queen-cell was still intact. Forty-eight hours after drugging I examined them again, and found the cell still intact, and no further progress had been made on any of the other queen-cells.

They had one case of sections on. I then took away all finished sections, and filled up again with sections containing full sheets of foundation. Seventy-two hours after drugging I examined them again and found the cell torn to pieces. About a week after this I gave them another case of sections, there was a steady moderate yield from the raspberry during this time. This colony gave me about 50 lbs. of nice finished sections that season.

The above experiment convinces me that chloroform is the specific.

When a swarm issues, put it back, take away all finished sections, and fill up again, and give room enough for all the bees to work; then give them a good drugging in the evening. Before morning they will be rid of the effects of the drug, and will have forgotten, or given up all notion of swarming, and go to the fields to gather nectar and pollen as usual the next day. I find chloroform very useful in the apiary.

In introducing queens not a queen need be lost. Also in the uniting of colonies, not a bee will be lost from fighting excepting one of the queens. Also in moving bees about the apiary, set them anywhere and in the evening give them a dose. In the morning they will be seen marking their location as they fly out, and will return to it, they having forgotten all about the old one. I suppose ether would do as well as chloroform, although I have never used it.

In all cases the drugging should be to a stupor, except in introducing queens in a honey flow, when very little or none is needed. Objections may be taken to the use of anæsthetics in the apiary on the ground of their being injurious to the bees. My observation has been very close, and so far I have not been able to detect any difference. Twelve hours after a colony has been drugged they will be as brisk as ever. As a proof of this, take a queenless colony in the fall that is being robbed wholesale, no defence being made at all, drug in a queen in the evening and in the morning watch and see how the inmates will shoot up off the alighting board at the robbers as they appear.

The foregoing remarks are from my own observation and experience. My theory for the prevention of increase in working for comb honey originated with myself (never having seen anything written on the subject).

I only tested it on one colony; but I have no doubt but what chloroform will prove effectual every time if properly used. I do not need to prevent increase as yet, because I am working up an apiary from a small beginning, but if the time ever comes that I shall need to, chloroform is what I shall use to accomplish my purpose.—W. H. Kirby, *Oshawa, September* 29, 1888. (*The Canadian Honey Producer*).

INJURIOUS EFFECTS OF MOISTURE EASILY AVOIDED.

[1984.] So far as I have been able to discover, there is nothing that would lead me to suppose that moisture affects the welfare of bees in any respect differently from the manner in which it operates upon the well-being of the larger animals. The problem involved in the 'moisture' seems to me not to be a difficult one if we remember two facts; viz., that heat expels moisture; and that moisture furnishes an excellent medium for the escape of heat. So, it is evident that, in the discussion of this question, these two elements must be taken as interdependent; that is, what might be an injurious amount of moisture in one case might be perfectly harmless in another, owing to the existence of a higher temperature.

And it is plain that this matter of heat presents two aspects; viz., the internal heat, so to speak, of the clustered colony, and the temperature of the surrounding atmosphere. Each should be taken as complementary of the other—the higher the one the lower the other may be permitted to be. The well-fed, fat, and vigorous ox throws off the moisture left on his sleek hide by a shower, in clouds of vapour, even in a low temperature; while an ox of low vitality, ill-fed and lean, in the same temperature would remain wet and shivering: but if the temperature were sufficiently raised he would throw off the moisture equally as well as did the other in the lower temperature. We must recognise the same distinction between strong, healthy colonies of bees and those weak in numbers and vitality. While I say this, I do not think there is anything to fear from the moisture of any ordinary atmosphere. There is no danger from moisture in the dampest of cellars, only it will not answer to arrange the hives and their trappings so as to collect the moisture. If there is much moisture, the temperature must be under control and kept well up; and the hives so arranged as to favour the expulsion of the moisture. All that is necessary in order to guard against any ill effects, even from a saturated atmosphere, is well-fed colonies of fair strength, in well-ventilated hives, kept in a temperature of from 45° to 50°.*

A cellar can scarcely be so dry that moisture will not drip down the inside of the hive if the temperature be low; and while this indicates too little warmth, it is not necessarily injurious. The important point is to keep the moisture out of the cluster; hence it follows that the fact that the moisture is so great that mould gathers on the comb is not in itself any proof that the conditions are unfavourable to the well-being of the bees.

Having had considerable experience with both damp and dry cellars, I am firm in the belief that there is nothing to fear from the effects of atmospheric moisture, if one only bears in mind the principles above hinted at; providing the conditions indicated which will enable the bees to drive that moisture away from the cluster.—R. L. Taylor, *Lapeer, Mich., November* 9, 1888.

SOFT CANDY.

[1985.] I have just made some nice-looking, soft candy, and am induced to give the recipe for the benefit of others who may, like myself, have sought in vain for the proper preparation.

Take some sifted preserving sugar, a little pea-flour, some honey or autumnal syrup, mix, with two forks, into a stiff cake. Place it in a jar, which put in a saucepan of boiling water, and keep it on the fire for a few moments. Put it in a box-lid—candied fruit-boxes do well—dry it off for a little while in front of a bright fire, and it will set fairly hard.—C. A. J.

MARKETING.

HIVES AND SURPLUS COMB HONEY RECEPTACLES.

[1986.] The hive we want is one that will bring us the most honey, and the one easiest manipulated for the rapid storing of honey in its most marketable form.

There is, however, some prime factors to be understood for the obtaining of the necessary force to reap the very first results, for without a strong force of bees at the time of bloom, and when the elements yield up the precious nectar, our efforts will come to naught. Then I maintain now, as in the past, that we must cater to the needs of the queen as regards her power of reproduction, in order to obtain the very best results

* This temperature applies only to cellar wintering.—Ed.

numerically from our colonies, which is a prime factor in obtaining an abundant harvest of honey; and any device, whereby the queen is hindered in rapid depositing of eggs in the proper season, is a detriment to the apiarist, and costs him many pounds of honey.

The hives, to be non-swarming, must be capable of expanding, to meet the needs of an extensive army of workers, and at the same time we should be able to quickly contract them to any small-sized nucleus; by this means we have increase practically at our command, if we will be awake and attend to the bees in their season.

As the markets call for honey in comb form, in one and two-pound sections, of course our receptacles must be put up to accommodate this size of package; and if we can persuade our bees to build the sections marketably without separators, I would advocate their abolishment; but this is a debateable question, and one not fully settled in my own mind.

THE PREVENTION OF INCREASE.

There is another question of more vital importance to the apiarist than the use or non-use of separators in working for comb honey, and one which we believe to be more difficult of solution, viz., the prevention of increase, and how to induce the bees to work in the sections. A practical method that will solve this problem will be a boon to the apiarist, and we will listen with interest to all arguments in that direction.

It has always appeared to me that combs the size of one-pound sections were contrary to the laws governing the household economy of the bee; and when they occupy them it is with reluctance, and only under force of circumstances; their brood-chamber must be filled to its utmost capacity, with brood, pollen, and honey, and then only for pastime will they cluster in the sections, and gradually deposit a small amount of honey therein, until sufficient 'steam' is raised to engender the swarming fever, when out go the bees, and the sections are left as empty and void of workers as a church-house garret.

It is the swarming nuisance that is a menace to the comb-honey producer, and any surplus receptacle that will overcome this difficulty will be a boon to the bee-man, as well as to the consumer.

I also believe that a skeleton break-joint or zinc honey-board used in the centre of the hive is a detriment to the progress of the bees, more or less, and should be excluded. In manipulating for extracted honey the case is quite different. Combs put up more in accordance with their natural instincts, can be placed above the brood chamber, and with little or no ceremony they are quickly occupied, and the apiarist can expand the size of the surplus department to accommodate the size of the colony, by adding more combs and cases; and the force and attention of the bees being turned to honey gathering, the swarming impulse is almost wholly overcome.

To sum up: First, Let us see that the hives and combs are put in a way that will give the queen a chance to develop her strength. Secondly, See that the surplus receptacles are arranged so that they can be accommodated to the needs of the colony, be it strong or weak, and abolish as much as possible all complicated features. Let all frames, hives, and surplus receptacles be made by a pattern, and use no other throughout the entire yard. Let all hive-stands, bodies, covers, brood-frames, &c., be interchangeable with any hive in the yard, and you will be prepared to combine pleasure with profit in your bee-keeping.—J. M. Hambaugh, *Spring, Ills.* (*The Bee-Keepers' Guide*) (*Read at the Central Illinois Convention*).

Echoes from the Hives.

Hensingham, near Whitehaven, Cumberland, 26th January.—In Mr. Webster's letter [1428], January 19th, 1888, writing about Italian bees, occurs the following passage: 'I will not include districts above latitude 54°, as there I do not find so great an improvement of the bees by such an introduction.' A friend of mine who introduced them here quite agrees with him, and he now wishes he had not done so, as he finds the blacks (or browns) much better. Now Carniolans have been very much recommended in the *Journal* lately, and I would like to try them, but before doing so I would like to hear the opinions of some bee-keepers who have tried them who live farther north than 54°, say north of Lancashire. In regard to 'Cottingham's' letter [1940] as to best size of hives, I think one containing twelve frames quite large enough for this district, as a great many remove them to the heather, and one containing twelve frames is large enough to move about, and I have always found it large enough to get full of bees. We have generally to be satisfied with ten well filled with brood and bees; this leaves room to remove the dummy and draw the frames back. I always wire my frames, which makes them safer for travelling to the heather, and I find it is better to wire them from side to side; some that I wired from top to bottom pulled one-half of the top bar lower than the other. And instead of using a spur-embedder to embed the wire, I ground an old gimlet that had got the screw broken off, and by heating it in the gas-flame I can run it along the wire and embed it quite as well as with a spur embedder, the groove of course keeps it on the wire. The weather is very mild here this month, more like April than January. —James Finlay.

Louth, Lincolnshire, Feb. 1st.—Weather very mild; Bees have been on the wing the last fortnight, and evidently breeding. Many skeps in our neighbourhood dead through neglect of feeding in the autumn, although bee-keepers were warned, also advised as to the best means of feeding through our local papers; and, as Mr. Woodleigh states in this week's *Journal*, some old-fashioned bee-keepers gave them as much sugar as they would give to a child for a meal. All my hives are about 18 inches from the ground, with a soap-box lid sloping from the entrance to the ground, with entrances ¼ inch deep, and a pyramid pear-tree between each hive, so that there is little danger of bees going to wrong hive. My bees are chiefly English; I have a few stocks of hybrids, a cross with Ligurians and blacks; they are good workers and breeders, but not very good-natured. I have introduced Carniolans this last autumn, so am not in a position to give an opinion upon their qualities. —H. O. Smith, *Julian Bower Apiary, Louth.*

Grantham, Feb. 1st.—Bees, so far, have passsd the winter safely, and most of the hives are strong in bees and healthy.—J. W. B.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

Horace.—*Renewing Combs.*—If your combs are only three or four years old, there is no necessity to renew them. We have at the present time many combs in use which we know are over eight years old, and they appear in perfect condition for brood-rearing. The best method of renewing them is by contracting the hive during spring to just so many frames as the bees require, and adding sheets of foundation as the necessities of the bees require. The remaining old combs can be brought to the back until free from brood, and can then be replaced with foundation one

at a time. Do not use wired foundation, but wire your foundation into the frames. This is much better and stronger. Use the Woiblet spur embedder for this purpose.

R. R. Godfrey.—*Queen and Bees.*—No trace of bacilli or any fungoid disease has been found in the bees forwarded. In all cases the external appearance is quite healthy. In the queen the tracheæ were healthy; the spermatheca containing innumerable spermatozoa in good condition; stomach and alimentary organs very much atrophied; contents, a small quantity of granular matter and a few crystals of sugar; ovaries greatly atrophied. Appearance generally suggests want of nourishment, and death arising from slow starvation. The same verdict may be pronounced as to cause of death of the workers.

Beeswing.—*Stimulative Feeding.*—You will doubtless find the death-rate only a normal one; though had we a closer acquaintance with the hive in question we should be able to state exactly what the matter is. Pea-flour must be avoided until the latter part of February at the earliest. We know of nothing that will prevent 'spring dwindling,' except a proper care of stocks before winter, getting all as nearly as possible into normal condition by the beginning of October. We have not yet tested Prof. MacClain's treatment.

Query.—*Using Old Foundation.*—The foundation kept from last year can be made serviceable for the present season. You can remove the brittleness, and render it fit for use, by means of hot water. Let it be hot to the hand. About one part of boiling to two of cold will serve your purpose. Just hold the sheets in the water for half a minute.

Geo. Ives.—*Bees dead.*—Your bees have apparently died of old age. The past season being so unfavourable, the rearing of brood was neither constant nor continued late enough, in many cases resulting in a deficiency of that 'young blood' necessary to carry a stock through the winter. In other cases, should the sun not appear for many days together while a low temperature prevails, rather than shift their position, tho clustering bees will often perish, with stores within a few inches of them.

W. T. Atkins.—*Dead Bees.*—The bees sent have the appearance of having been drowned with syrup. We should think that if fed with a bottle the syrup had leaked and run upon the cluster, and so suffocated them when in a state of semi-hibernation. They are not dysenteric. There are most decided symptoms of suffocation in some form, but without further details nothing can be deduced.

W. W. Ley.—1. *Carbolised Feather.*—A goose-quill moistened with carbolic acid solution, is passed over the tops of the frames, and the bees are thus subdued. This solution was introduced by the Rev. Geo. Raynor. That recommended by him is made in the following proportions:—1½ oz. Calvert's No. 5 carbolic acid; 1½ oz. glycerine; 1 quart of warm water. The acid and the glycerine should be well mixed before adding the water, and the contents of the bottle well shaken before using. 2. *Queen-cell.*—The presence of a queen-cell indicates that the bees had been raising a queen. 3. *Dampness.*—The dampness of the respective hives is probably caused by the soil on which the legs rest, and other surrounding circumstances, of which we would require to have cognisance before being able to indicate a remedy. 4. *Webster's Fumigator.*—In this fumigator the sponge in the cylinder is moistened with an agent furnished by Mr. Webster, which, we believe, is a mixture of carbolic acid and creosote, a piece of ammonia being placed in the recess. When charged this fumigator is ready for use at any moment, and will work for weeks or months, according to the amount of work imposed on it. It is used in the same manner as a smoker, without producing any deleterious effect on the bees. Bee-keepers are, however, very divided as to whether the ordinary smoker or the fumigator is the readier method of subduing the bees; but, as you have so much difficulty with your smoker, we are inclined to say that the fumigator would afford you the greater facilities. 5. *Manufacturers' Appliances.*—It is not within our province to recommend the appliances of any special manufacturer. Consult our advertising columns, and we consider you will be safe in the hands of those to be found there.

Business Directory.

HIVES AND OTHER APPLIANCES.

Abbott Bros., Southall, and Merchants' Quay, Dublin
Appleton, H. M., 256A Hotwell Road, Bristol.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Burtt, E. J., Stroud Road, Gloucester.
Edey & Son, St. Neots.
Godman, A., St. Albans.
Howard, J. H., Holme, Peterborough.
Hutchinos, A. F., St. Mary Cray, Kent.
Meadham, M., Huntington, Hereford.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.
Walton, E. C., 82 Emmanuel Street, Preston.
Webster, W. B., Binfield, Berks.
Woodley & Flood, 26 Donnington Road, Reading.
Wren & Son, 139 High Street, Lowestoft.

HONEY MERCHANTS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baldwin, S. J., Bromley, Kent.
Edey & Sons, St. Neots.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

FOREIGN BEES AND QUEENS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Benton, F., Laibach, Carniola, Austria.
Edey & Sons, St. Neots.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

METAL ENDS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Edey & Sons, St. Neots.
Godman, A., St. Albans.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

COMB FOUNDATION.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Edey & Sons, St. Neots.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.

COMB FOUNDATION MILLS.

Godman, A., St. Albans.

HONEY GLASS MERCHANTS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Blow, T. B., Welwyn, Herts.
Pearson, F., Stockton Heath, Warrington.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

WINDSOR MEETING, 1889.

PRIZE LIST FOR HIVES, HONEY, &c.

To be obtained of J. HUCKLE, Sec. of the B. B. K. A., Kings Langley, Herts.

Exhibits in Classes 1, 3, 4, 5, 6, 7, 8, 9, 10, 11 (sections excepted), must be manufactured by the Exhibitor. Exhibits in Class 1 and in Class 19 to be staged and repacked by the Exhibitor.

Class 1.—For the best collection of Hives and Appliances, to consist of the following articles:—One Frame-hive, priced at 15*s.*; one ditto, priced at 10*s.* (*Note.*—These Hives must be fitted with arrangements for Storifying.) One Observatory Hive; one Hive of Straw or other material, not entirely of wood, for obtaining either Comb or Extracted Honey; one pair of Section Crates fitted with Sections; one Extractor, one slow stimulating Feeder, one rapid Feeder; one Smoker or other Instrument for quieting Bees; one Veil, one Swarm Box for travelling, capable of being used as a Nucleus Hive; one Travelling Crate for Comb Honey; five other distinct articles not specified at the discretion of the Exhibitor. Each article to be priced separately. No articles must be added to the collection, nor any portion of the Exhibit removed during the Show. First Prize, 40*s.*; second Prize, 30*s.*

Class 2.—For the best Observatory Hive stocked with Foreign Bees and Queen. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

Class 3.—For the best and most complete Frame-hive for general use, unpainted. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

Class 4.—For the best and most complete Frame-hive for general use. The Hive shall consist of (1) a Floor-board on four short legs; two Chambers or Body-boxes, equal in size, similar and interchangeable, both to have porches, with entrances not less than 12 in. wide, that can be contracted at pleasure, each chamber to be capable of holding at least ten Standard Frames, but only one set of Frames with strips of foundation fixed and two division-boards to be supplied. (2) One Case of 4¼ by 4¼ Sections, with foundation fixed and separators, of such size as to admit of its being placed inside the chamber. (3) A substantial Roof, sufficiently deep to cover a case of sections and afford ample protection to the whole Hive, the price of each part, namely, stand and floor-board, body-box, case of sections, and roof, to be given separately, the whole not to exceed 15*s.*, unpainted. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

Class 5.—For the best and most complete Frame Hive for general uses. The Hive shall consist of (1) one Chamber or body-box, containing ten Standard Frames having strips of foundation fixed, two division boards, entrance porch, and floor-board, the chamber capable of being used with a second of the same pattern. (2) One Case of twenty-one Sections, 4¼ by 4¼, with foundation fixed and separators. (3) A Roof sufficiently deep to cover one case of sections at least, the price of each part, namely, floor-board, body-box, case of sections, and roof to be given separately, the whole not to exceed 10*s.* 6*d.*, unpainted. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

Class 6.—For the best Honey Extractor, price to be taken into consideration. First Prize, 15*s.*; second Prize, 10*s.*

Class 7.—For the best Honey Extractor, price not to exceed 12*s.* 6*d.* First Prize, 15*s.*; second Prize, 10*s.*

Class 8.—For the best pair of Section Racks, completely fitted for use and interchangeable, price not to exceed 3*s.* 6*d.* each. First Prize, 15*s.*; second Prize, 10*s.*; third Prize, 5*s.*

Class 9.—For the best Feeder for slow stimulating feeding. First Prize, 10*s.*; second Prize, 5*s.*

Class 10.—For the best Feeder for quick autumn feeding, capable of holding at least 5 lbs. of food at a time. First Prize, 10*s.*; second Prize, 5*s.*

Class 11.—For the best Smoker. First prize, 10*s.* second Prize, 5*s.*

Class 12.—For Useful Inventions introduced since 1887. Special Prizes according to merit.

Class 13.—For the best 12 Sections of Comb Honey, the gross weight to approximate 24 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

Class 14.—For the best 12 Sections of Comb Honey, the gross weight to approximate 12 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

Class 15.—For the best 6 Sections of Comb Honey, the gross weight to approximate 6 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

Class 16.—For the best Exhibit of Run or Extracted Honey in jars, not exceeding 2 lbs. each, the gross weight to approximate 24 lbs. First Prize, 30*s.*; second Prize, 20*s.*; third Prize, 10*s.*; fourth Prize, 5*s.*

Class 17.—For the best Exhibit of Heather Honey (Comb or Extracted), the gross weight to approximate 12 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

Class 18.—For the best Exhibit of Granulated Honey in jars, not exceeding 2 lbs. each, the gross weight to approximate 12 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

Class 19.—For the best Exhibit of Comb and Extracted Honey, in any form, staged on space 4 ft. by 4 ft., height not to exceed 5 ft. above the table. The gross weight of each kind to be stated. First Prize, 60*s.*; second Prize, 40*s.*; third Prize, 20*s.*

The Exhibits in this class to be staged by the Exhibitor.

[A Silver Medal, independently of Money Prizes, will be given for the Exhibit most tastefully arranged.]

Class 20.—For the best plan and design for an Apiary of 50 Hives on two or more acres of land, to include a suitable building for extracting and general work. The design to show arrangements for growing Honey- and Pollen-producing plants, attention being given to the value of the crops for other purposes. First Prize, 40*s.* and Silver Medal; second Prize, 20*s.* and Bronze Medal.

Class 21.—For the best Diagrams suitable for a Lecture on Bee-keeping, or Technical Lessons in Rural Schools. First Prize, 40*s.* and Silver Medal; second Prize, 20*s.* and Bronze Medal.

Class 22.—For the most interesting and instructive Exhibit of any kind connected with Bee-culture not mentioned in the foregoing Classes. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

The Council reserve to themselves the right to publish for Educational purposes any Exhibit entered in Class 20 and 21.

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Editorial, Notices, &c.

BRITISH BEE-KEEPERS' ASSOCIATION.

MEETINGS, &c., THURSDAY, FEB. 21ST, 1889.

The Quarterly Conference of the County Representatives with the Committee of the British Bee-keepers' Association will take place at 149 Regent Street, at 2 o'clock.

The Annual General Meeting of the Members of the B.B.K.A., will take place at 105 Jermyn Street, at 3.30. The chair will be taken by the President of the Association the Baroness Burdett-Coutts.

A Conversazione will be held at 105 Jermyn Street at 6 o'clock. Mr. Thomas W. Cowan will open the discussion. Subject, 'The Choice of a Hive.'

Members of the Association are reminded that subscriptions for the current year became due on January 1st.

Prize Lists for the Bee Department of the Royal Agricultural Show to be held at Windsor in June next, are now ready.

Secretaries of the Affiliated Associations are requested to advise their Representatives of the above Meetings.

JOHN HUCKLE, *Secretary.*

PRACTICAL WORK IN THE APIARY.

It seems almost out of place to talk about 'practical work in the apiary' just at this time when we are in mid-winter, but if we are not yet able to do much amongst our bees, there are many things we can do to be in readiness for them when they are again roused into activity. Although in many places the weather has been mild, and we have even heard of birds preparing to build their nests, in others we hear of snow, and from past experience we do not think we have yet got over the worst of the winter. We may yet have snow and frost up to the end of March, or even in April, so that we would caution our readers *not to be in too great a hurry to induce breeding.*

It is a great temptation, especially to the novice, to examine his bees on a fine day, but we would warn him not to do so unless he suspects that they are short of food, and in such a case he need only lift the quilt for an instant to ascertain their condition. Such a procedure would disturb them but little. It would, however, be quite different if the combs were taken out and examined. Such an act would stimulate the queen to commence laying rapidly, and would induce activity and a large consumption of food. Many bees during the inclement weather would leave their hives in search of water and pollen, and would probably become chilled, never to return. As the brood increases the number of bees required for its protection and for producing the necessary heat decreases, and the inevitable result, 'chilled brood,' is the consequence. We are not out of winter yet, and severe frosts would prove disastrous to a colony whose combs were filled with brood, so that the close clustering so necessary in cold weather were prevented.

There may be exceptional cases in which it is permissible to examine a hive; for instance, should we find the bees suffering from dysentery. An examination and a transfer of bees and combs to a clean, warm hive might be the means of saving their lives. We do not recommend a general examination until the end of March, and this will be found quite soon enough to enable the bee-keeper to build up his colonies to the proper strength in time for honey-gathering. The roofs should be taken off the hives on a fine, warm day, and if the quilts are found to be damp, they can be removed, and dry, warm ones substituted. Giving the quilts and the chaff packing an airing on a bright day does the bees much good. If the bees are suspected to be short of food, just push a cake of candy under the quilt, on the tops of the frames; not 'flour candy,' as this would be too stimulative at present, but plain candy.

A correspondent gives on page 69 a recipe for making soft candy; we have not tried this, but presume it could be made equally as well without the pea-flour. The candy we have always used, and which we prefer is made by boiling the sugar, and then stirring it until it is cool. Use a tin saucepan, and put into it three quarters of a pint of water. When this boils, gradually stir in 6 lbs. of white lump sugar. Keep it boiling until every particle of sugar is dissolved, and stir continually to prevent its burning. Should it become burnt, no amount of

boiling will make it set hard. To test when the boiling is sufficient, drop a little of the boiling sugar on a cold plate, and if it sets tolerably hard on cooling, being at the same time just sticky, it is done enough. Boiling too much makes the candy hard, and it remains very soft if not boiled enough. When it is just right, take it off the fire and stir until it begins to set. It can then be poured into saucers, in which pieces of paper are placed to prevent the sugar sticking to them.

What is known as 'Good's' candy, or, as it should be properly called, Scholtz' candy, as this gentleman was its discoverer, is too soft to give now, and if given in large doses is likely to deliquesce. If it is given at all, only a small quantity at a time should be introduced into the hive. We would remind our readers that now is a good time to give orders for hives and appliances which may be required this year. It is not at all likely that we shall have another season as bad as was the last; and if orders are left until the bees begin to increase, the manufacturers may not be in a position to deliver them in time for the honey harvest.

USEFUL HINTS.

Weather.—February has opened with boisterous weather,—high winds, fitful storms, rain, hail, and snow. Better this than unseasonable warmth and over-abundant sunshine. Some years ago we remember an unusually fine and warm February, which aroused the bees to extensive breeding, and then came the check of a three months' winter, to which many colonies succumbed. Folk-lore reminds us of a tradition which prevails in most parts of Europe expressed in these lines:—

> 'If Candlemas Day be fair and bright,
> Winter will have another flight;
> But if Candlemas Day bring clouds and rain,
> Winter is gone and will not come again.'

Or, according to the Scottish version:—

> 'If Candlemas Day be fair and clear,
> There'll be twa winters in the year.'

Another English couplet tells us that—

> 'When the wind's in the east on Candlemas Day,
> There it will stick till the second of May.'

In the east it assuredly was in our south-eastern counties on Candlemas Day, February 2nd, as most of us know. In this district, as we learn from many years' experience, north and easterly winds prevail throughout the months of February, March, April, and May. Our winter is not yet over, and during these cold winds there must be no manipulation of bees save under urgent necessity. In the midst of hail-storms, sleet, and snow, vegetation is already too precocious. The winter aconite and the snowdrop we expect to see, but the lilac bloom of the ivy-leaved toadflax (*Linaria*) of the figwort family, the pale yellow primrose, and the white petals of the wild strawberry bloom, are somewhat premature in appearing at this early season. On the southern banks of our hedgerows, the cuckoo-pint (*Arum*), or 'lords and ladies,' or 'cows and calves,' as our Midland friends name them, are already several inches high. Daisies, too, are bespangling many a low-lying, sheltered meadow. These all serve to remind us that the dreary winter is past, and the bright spring approaching. After the terribly disastrous season of '88, may it be a 'balmy' spring, and may the coming season prove bountiful in bees and honey! *Apes floreant.*

Black Paint for hive-covers or roofs is objected to by 'Woodleigh' (1969, p. 51.) 'Carson's black varnish,' recommended for out-door work, we have used for a length of time for the outer cases and covers of our hives, and have experienced none of the ill effects which 'Woodleigh' anticipates. Our apiary, also, is in an exposed position, and on a clay soil, but we have had neither melted combs nor over-heated hives. We always advise shelter from the mid-day sun during the summer, wherever practicable; but, failing this, slightly raising the hive-covers in exceptionally hot weather will obviate all danger. The absorption of heat during the winter months is of decided advantage to our bees, and beneath our tall pyramidal black covers the temperature, retained by the chaff-cushions, felt quilts, and straw covers of the hives, in the outer case below, which is also black-painted, is maintained during the most severe frost. Whether or not the 'Carson paint' is a 'kind of refined gas-tar,' as 'Woodleigh' surmises, we are unable to say, but we think not. It quickly dries—in ten minutes in fine weather—and leaves a fine glossy surface, impervious to rain or snow, but has not the slightest odour of gas-tar. It is a patent preparation, and is far cheaper than any other kind of paint we have used.

Cowan Hives.—'Mid Sussex' (1978, p. 58) asks if we are 'trying to condemn the Cowan hives' when we advise that hives should be raised from 12 in. to 18 in. above the surface of the ground, since these hives have no legs? To which we reply, By no means, as we consider the Cowan principle the right principle, and the one upon which our own apiary is formed and worked. But there is no reason why the Cowan hives should not be placed on stands, or legs, of the height we advise, but every reason why they should be so placed in this climate of rain, dampness, fog, and cold. We have yet to see a self-established swarm—in natural habitat—*near the ground.* Such colonies are *always* found at a considerable height from the ground, as in roofs of buildings, churches, the upper parts of hollow walls, or hollow trees. Surely this instinct must point to the 'right way,' even in the absence of other reason or cause.

Virgin Queens.—'A Jersey Bee-keeper' (1975, p. 57) refers to our remarks on the purchase of virgin queens ('Useful Hints,' p. 3), and asks whether 'travelling would not affect them more than fertile queens, since they require nitrogenous food and warmth.' Our experience proves that virgin queens can travel any required distance in this country without injury. We always send them in the small boxes in which we receive queens from Italy (about 6 × 4 × 3 in.) on comb containing sealed honey and pollen, and with a full attendance of worker-bees. There is no danger of chill during the summer months, at least, in weather suitable for the queens to take their aërial flights, and it would be useless to send them at other seasons.

Drones may also be transmitted in the same way, but these should be introduced to queenless nuclei, or hives, otherwise the probability is they will be destroyed by the bees.

'Modern Bee-keeping.'—We do not see the cogency of the remarks of the same correspondent in reference to the directions given in *Modern Bee-keeping* for building a ten-frame standard hive. In the last edition of that work (p. 22) the width of the hive is given as 15 in., which takes ten frames at 1½ in. from centre to centre. At page 25 we find directions given 'to overcome the difficulty without which a frame from a very full hive cannot be removed, viz., by making the hive wider than the ten frames require, and inserting two half-inch *division-boards*, one on each side, either of which to be removed when examining a hive; we thus obtain space, and avoid all danger of injuring the workers or the queen.' These appear to us plain and simple directions, which scarcely admit of misunderstanding.

Metal Ends.—In our own practice, when using metal-ends, we use also a spline ¼ in. square by 15 in.

long, which is placed between the top-bar of the outside frame and the division-board, on both sides of the hive, and which lies flush with the frames. This creates an outside space of $\frac{1}{2}$ in. between the outer combs and division-boards, which we do not find at all too much. The ordinary broad-shouldered frame provides the same space, but the metal-end allows merely a $\frac{1}{4}$ in. space, which is too little, as the bees refuse to place honey in so narrow a space, and, consequently, half of the outside combs remains unused, the foundation not being drawn out. We have seen hives in which the 'spline' is tacked on to the division-board, but we prefer to keep it separate. Indeed, we always keep on hand a number of these 'splines,' which are very useful for placing between the top-bars of frames where a little more than the ordinary space is required.

Examination of hives may be made, when the weather permits, by turning aside the quilts, and thus ascertaining the condition of the bees. If colonies are much reduced in numbers, the division-boards should be closed up, confining the bees to the small number of frames they are able to cover, and soft candy should be placed over the cluster.

Uniting weak colonies must be deferred till a later period, the end of March or April being quite early enough for this operation. If performed sooner, the probability is that all will perish. Weak colonies require extra warmth and packing.

Candy alone should be used as food during the present month. The middle or end of March will be soon enough to give syrup.

Enamel Cloth may now be used advantageously where pervious quilts have been in use during the winter. Dr. Tinker has given his opinion thus, as regards upward ventilation: 'I am strongly impressed with the idea that a great part of our wintering troubles comes from upward ventilation in hives. The great success of Mr. Barber in wintering is due to the fact that he gives his bees no top ventilation.' To prevent all escape of heat, therefore, through woollen, or other quilts, it is well *now*, at all events, to place enamel quilts underneath them, and by extra packing—more needed now than ever—to keep our bees warm, and the queens breeding, during the cold spring winds and frosts.

Olla Podrida.—A friend sends us the following which may prove interesting to many of our readers:—

'Tobacco Smoke and Bacilli.—According to Professor Vincenzo Tassinari, first assistant of the Hygienic Institute of Pisa University, the general belief in the germicidal virtues of tobacco-smoke is not without some foundation. Dr. Tassinari has made some interesting experiments lately, which show the destructive action of tobacco-smoke upon the growth of bacilli. The action of tobacco fumes was tried by him upon seven different kinds of bacteria—the so-called cholera bacillus, the cattle-distemper bacillus, pus coccus, Finkler-Prior bacteria, the bacilli of typhus and pleuro-pneumonia, and the bacillus of blue pus. In the experiments the descriptions of tobacco most commonly smoked in Italy were used. In order to imitate as closely as possible the process going on in the human mouth during smoking, Dr. Tassinari passed tobacco-smoke through a horizontal tube into a chamber kept moist by a bunch of wet cotton-wool suspended in it, and containing also a growth of bacilli, which were submitted to the action of tobacco fumes. The experiments showed that tobacco-smoke retards the development of some kinds of bacteria, while it entirely prevents the development of others. By comparative experiments with growth of the same micro-organisms not exposed to the action of tobacco-smoke, it was proved that a cigar much fancied in Italy, the large Cavour cigar, retards the development of pus bacilli 72 hours, of cattle-distemper bacilli 100 hours, and that it absolutely arrests the growth of cholera and typhus bacilli. Encouraged by the success of his experiments, Dr. Tassinari next proposes to deal with the tuberculosis bacillus. He attributes the annihilating effect of tobacco-smoke upon bacilli to the chemical action of its constituents.'

Gordon.—The following lines, hung in the late General Gordon's bedroom at Southampton, may well prove consolatory to bee-keepers as to others:—

'Oh, ask not thou, "How shall I bear
The burden of to-morrow?"
Sufficient for the day the care,
Its evil and its sorrow.
God imparteth by the way
Strength sufficient for the day.'

Earning and Saving.—It is not what we *earn*, but what we *save*, that makes us rich. It is not what we *eat*, but what we *digest*, that makes us fat. It is not what we *read*, but what we *remember*, that makes us learned.

The Sun and Sin.—In an American periodical entitled *America* appeared an article, a short time ago, by a Mr. McEnnis, endeavouring to prove that sin results from the heat of the sun, and consequently by removing heat from the world we should remove the cause of lawlessness and disorder, upon which large amounts are yearly spent on police and in the criminal courts. And, strange to relate, the figures given vindicate the statement. For every degree of rise and fall in the thermometer there is a corresponding increase and diminution of sin—greatest when the heat is greatest and least when it is least; establishing a connexion between the two sets of phenomena not easily refuted. Taking the City of Chicago Mr. McEnnis shows that the arrests made in January, the coldest month, with a mean temperature of 24·1° F., were 26·190, and were the lowest of any month in the year; and that gradually increasing with each month, as the heat increased, they reached, in the months of July and August, the hottest months, their highest points, viz., 47·315 and 49·631 arrests respectively, the mean temperature for July being 72·4° F. and for August 71·4° F., and gradually decreasing, together with the decreasing temperature, until again arriving at the coldest month.

The question naturally suggests itself, If the wickedness of the human race depends upon the temperature, how is it with our bees? Here, again, fact seems to fall in with theory, for certainly the bees are so 'wicked' as to be all but unapproachable during the greatest heat of summer. How terribly wicked, too, should we expect to find dwellers within the tropics! Or, again, is not the fervid temperament of our Irish friends in some way connected with the mildness of their climate? May not the 'Gulf Stream,' which strikes its western coast, be debited with a large amount of the woes of Ireland?

NOTES BY A WANDERER.

It has been my happy fate for the last year to have had more leisure than has fallen to my lot at any previous period. Thus, I have been able to wander to and fro rather more than hitherto, and to visit Shows, some account of which may interest your readers.

On June 29 I found myself at Ilford where the Essex Bee-keepers' Association had a large tent at the Agricultural Show and an excellent display of honey, considering the season, and of bee appliances. The crowds that flocked to the bee-tent surprised me, and it is evident that there is still ample work for all the Associations. Mr. Meggy, the Hon. Secretary, had his hands full, and with Mr. Debnam (the expert), Mr. Finch of Great Baddow, and others, did his best to answer the endless inquiries that were made on all sides. Honey was selling fast, and on all such occasions almost any amount of honey may be sold, if offered in small quantities, and in suitable glasses or jars. Books on bee-keeping would also have been sold if offered, but a strange story was afloat that books sometimes disappeared without being paid for, and so were put out of sight. It was a pleasure to hear Mr. Finch dwell so strongly on the important part that bees take in fertilis-

ing flowers and fruit. Even scientific men are apt to be a little incredulous on this point. Yet, when Lord Sudeley laid out his extensive fruit plantations at Toddington, in Gloucestershire, on the advice of Sir John Hooker, of the Kew Gardens, he established an apiary in the centre for the special purpose of fertilising the fruit-blossoms. The enormous crops gathered in those plantations, as well as the quantity of honey raised in the apiary, are a clear proof of the wisdom of Sir John Hooker's advice. Mr. Finch, no doubt, finds (as I find) that the apple crop around his neighbourhood is improved by the aid of his bees. For is not Baddow famous for the apple-tree so dear to every one in East Essex? The apple of my part of Essex is what is commonly called the 'spice apple,' or sometimes the 'D'Arcy Spice' apple. The proper name, however, of this apple, according to Mr. Barron and the Committee of the National Apple Congress of 1883, is the Baddow Pippin! Some of your readers may like a description of this apple, so I give the one I find in Mr. Barron's book;* 'D (dessert), medium (in size), round, greenish russet, sweet, firm, late, first quality.' The folks in my neighbourhood assert that the 'spice apple' will 'keep' till apples come again, and that it is better even than the Blenheim Orange! So Mr. Finch probably has good reason to dwell on the useful work which the bees do in bringing our fruits to perfection.

Let me now say something for the Essex Bee Association. Three or four years ago I judged for them at Waltham Cross, and certainly was not struck with the display made on that occasion. But their progress since then has apparently been by 'leaps and bounds.' A band of energetic men around Chelmsford, with the aid and advice of the Rev. G. Raynor, have worked wonders. No slight debt of gratitude is due to Messrs. Meggy, Durrant, Coleman, Gibbens, Brenes, Bovill, Finch, Reg. W. Christy, Captain Bush, and others, for their efforts in advancing modern bee-keeping in Essex. At the Crystal Palace Show, held in August under the auspices of the Co-operative Industrial Societies, the display of honey was one of the best I have ever seen, and for such a disastrous year as 1888 was a perfect triumph. At that Show the success of the East Anglians, and especially of the Essex men, struck me as remarkable. The county is divided into a number of districts, with hon. secretaries and hon. local advisers. The aid of the fair sex is not despised. Among the twenty-nine hon. district secretaries and hon. local advisers, I notice the names of several ladies. —Why not? Ladies with their gentle, quiet ways, their tact and keen appreciation of those slight differences which often account for failure or success, are quite as likely to succeed in the management of bees as the rougher, ruder sex. Moreover, they can act as 'ministers of mercy' among the cottagers and the dwellings of the poor far better than most men can. Other Associations should take a hint from Essex. I observe, too, that the Committee look carefully after their finances, and I believe that this year, by that careful management so essential to success in everything, they have a good balance in hand. Yet they offer prizes at most of the leading horticultural shows throughout the county. A remarkable proof of the change that is coming over even our cottagers is found in the fact that whereas at the general meeting of the Essex Bee-keepers' Association in 1888, it was stated by one of the speakers that the villagers near Brentwood would not allow their bees to be driven, but replied, 'Na, na, we'll barn 'em;' in the report of Mr. Debnam (the expert of the Essex Association) for 1889, he remarks that there are few skeppists left, who use the sulphur pit. In my own village there were one or two, but they have already been taught better. At no great distance there are several advanced apiarians with whom I hope soon to strike up a bee-friendship.—E. Bartrum, D.D., *Wakes Colne Rectory, Essex.*

P.S.—As some of your readers are no doubt interested in fruit culture, I may perhaps be allowed to add a few remarks on the D'Arcy Spice apple. Finding that a cottager in my neighbourhood had sold his 'spice' apples in November last for *eight shillings a bushel* to a greengrocer in a neighbouring town, for sale in the spring, I mentioned the fact to Messrs. G. Bunyard & Co., the well-known nurserymen of Maidstone. Their foreman informed me that, of the four hundred varieties in their nursery, this is the weakest grower of them all. Nor does it come into full bearing, as many trees do, at an early date. They propose, however, to graft the 'spice' apple on an early-bearing and free-growing stock, and in this way they will probably produce a valuable tree. In the strong soil of East Essex, the 'D'Arcy Spice' is said to grow well, though it does not suit the lighter soil of Maidstone. A good, late-keeping apple is a great desideratum, and let us hope that Messrs. Bunyard may in this way obtain one. Why, by the bye, don't the Essex people plant more *good* apple-trees in their strong soil? Where the elm flourishes, there the apple will flourish, and Essex elms are famous. My apples this year, for colour, size, quality, and quantity, could not well be surpassed.

* *British Apples*, report of the Committee of the National Apple Congress at Chiswick in October, 1883, compiled by A. F. Barron. (Macmillan & Co.)

ASSOCIATIONS.

MIDDLESEX BEE-KEEPERS' ASSOCIATION.

The annual general meeting of the above Association was held on Thursday, February 7, at the rooms of the Royal Society for the Prevention of Cruelty to Animals in Jermyn Street. The Baroness Burdett-Coutts occupied the chair. There were also present, Miss Clarke, the Hon. and Rev. H. Bligh, Major Fair, Major Michael, Dr. Rayner, Messrs. W. H. Harris, W. Pye English, O. Lambert, C. Benwell, J. Wallace, E. M. Pollock, H. Savory, H. Harvey, H. V. Clements, J. Mason, T. W. Rowley, G. Henderson, L. B. Knight Bruce, S. J. Gunn, and others.

The minutes of previous meeting were read and confirmed.

The annual report which we gave *in extenso* in our impression of January 24, and the balance-sheet, showing a balance in hand of 8*l.* 10*s.* in favour of the Association, were proposed for adoption by Lady Burdett-Coutts, and seconded by Major Fair.

The thanks of the Association for the use of the rooms of the R. S. P. C. A. were proposed by the Hon. and Rev. H. Bligh, seconded by Mr. English, and acknowledged on behalf of the Society by the Baroness Burdett-Coutts, who alluded to the kindred work so largely promoted by bee-keepers in rescuing so many millions of animals from the cruel death of the sulphur pit.

The Hon. and Rev. H. Bligh proposed the re-election of the Baroness Burdett-Coutts as President of the Association, which, being seconded by Mr. English, was carried unanimously.

The President returned thanks for her re-election, expressing her pleasure to retain her position so long as her services were found useful to the Association.

The election of the Vice-Presidents (Lord George Hamilton, M.P., the Right Hon. S. H. Walpole, Sir J. Lubbock, M.P., Messrs. A. Lafone, E. M. Nelson, and A. Henderson) was proposed by Major Fair and seconded by Mr. Lambert; of the Treasurer (Mr. Rose), proposed by Mr. Henderson and seconded by Major Michael; of the General Secretary (the Hon. and Rev. H. Bligh), proposed by Mr. Gunn and seconded by Mr. Davies; of the Auditor (Mr. Arthur Kenworthy), proposed by Mr.

Henderson and seconded by Mr. Mason; of the Committee (Messrs. Gittens, Mason, Henderson, Lambert, Graham, Bolton, Clements, and in addition the Provincial and the District Secretaries, Messrs. S. J. Gunn, H. Harvey, J. T. Harveyson, P. P. Hasluck, H. Jonas, W. H. Kennell, E. Phillips, Major Michael, and Dr. Rayner), proposed by Mr. Rowley and seconded by Mr. Knight-Bruce. Carried unanimously.

Major Fair (proposed by Mr. Knight-Bruce and seconded by Mr. Mason) was elected Provincial Secretary of the South Province; Mr W. H. Harris (proposed by Mr. Henderson and seconded by Mr. Gunn) for the North-west Province; and Mr. Pye English (proposed by Mr. Rowley and seconded by Mr. Gunn) for the North-east Province.

Dr. Rayner and Mr. Pye English (proposed by Mr. Henderson and seconded by Mr. Mason) were elected as county representatives to attend the quarterly meetings of the British B. K. A. during the present year.

Mr. Baldwin (proposed by Mr. Gunn and seconded by Mr. English) was elected expert for the current year. The expert's spring tour was proposed by Dr. Rayner, seconded by Mr. W. H. Harris, and carried unanimously.

Mr. Mason proposed, and Major Fair seconded, a cordial vote of thanks to the Baroness for presiding on the present occasion, which was carried by acclamation.

In acknowledging the cordial vote of thanks for presiding, Lady Burdett-Coutts drew the attention of the Association to the many complaints, which had come to her ears in different parts of the country, of the difficulty experienced by bee-keepers in disposing of their honey. She suggested that Middlesex, containing as it did a large part of the metropolis, was perhaps in a better situation than any other county to grapple with this difficulty; and she begged the committee to take the matter into their serious consideration with a view to establishing a market for honey which might be accessible to bee-keepers in general, and through which they might be able to get fair prices for their honey.

A list of the prize-winners who had been successful in the annual drawing having been read, the business of the meeting was concluded.

The expert, Mr. S. J. Baldwin, gives the following report of his spring and autumn tours:—

Spring Tour.—I visited 172 apiaries, containing 566 hives. Of these 411 were moveable comb hives, and 155 skeps. Unfortunately, foul brood exists in most parts of the county, but is more prevalent in the Uxbridge district than in any other part I have visited, as there fully three-quarters of the hives are affected with this very troublesome disease. I am glad to be able to report that Shepperton, Halliford, Ruislip, Hounslow, and Pinner appear to be free from foul brood; and in some districts, owing to attention given to remedial measures, the disease appears to be decreasing. Every opportunity should be taken to impress upon members the necessity of a liberal and judicious use of phenol and carbolic acid about the apiaries; and the common practice of leaving old combs about for bees to clean, cannot be too strongly condemned, as it has, to my knowledge, caused much mischief. Loss of heat, through insufficient or improper covering of hives, has been a very common thing—in some districts especially—and many colonies have perished from this cause, both in moveable comb hives and in skeps.

Autumn Tour.—I commenced the autumn tour of inspection of the members' bees on Wednesday, the 3rd, and completed the work on the 24th inst., thus being occupied 20 days. I visited 204 members, and inspected 663 hives; of these, 447 are moveable comb hives, and the remainder, 221, skeps or boxes with immoveable combs; but this does not represent the true aggregate number of stocks owned by the members visited, as those belonging to 39 members, who had left messages, such as 'bees all right,' 'not to touch the bees,' 'packed for winter,' 'will not trouble you,' &c., are not included, therefore it may be assumed that the 204 members visited own at least 800 hives. I found 248 stocks in immediate want of food, covering, or other attention; 275 colonies required feeding, and very many of these must inevitably perish before spring unless well and carefully fed at once. 173 stocks were suffering, and in great danger, from loss of heat through insufficient covering, badly contrived feeders, or the injudicious use of same. Insufficient covering is a very common, but of course preventible source of evil with moveable comb hives; in many cases only one thickness of quilting being used, and that often being too small to cover the frames. The wonder to me is that bees ever survive such unkind or thoughtless treatment; and I am convinced that those who give proper attention to the warmth and comfort of their bees will succeed the best. I am pleased to be able to report that 'foul brood' has considerably decreased in the county since my previous visits. Many apiaries in which I then found the disease are now apparently healthy—thanks to the careful attention of the members—and I sincerely hope and trust, that with proper attention to remedial and preventive measures in the spring, the pest will soon disappear altogether.

WIGTOWNSHIRE APIARIAN ASSOCIATION.

The Annual Meeting of the above Association was held in Stranraer on Friday, the 1st inst. There was a fair attendance of members. The accounts for the past year were submitted, showing a small balance to the credit of the Society. The office-bearers were re-elected, and the Rev. J. B. Robertson, Leswalt, and Mr. Wm. McNally, Glenluce, re-elected Hon. Secretaries and Treasurers.

The show was fixed to be held at Stranraer on the 6th September. Along with the usual money prizes, a valuable medal is presented to the Society by the Rev. A. Duff-Watson, F. C. Manse, Castle-Kennedy, to be competed for annually among cottagers.

The Association agreed to record the loss sustained by the bee-keepers of Scotland through the death of Mr. Wm. Raitt, Blairgowrie, and the Secretaries were instructed to draft a minute of sympathy, and forward it to his relatives in the name of the Association.

HORSFORTH (YORKSHIRE) DISTRICT BEE-KEEPERS' ASSOCIATION.

This Association held its annual meeting on the 9th inst. at the Star and Garter Hotel, Kirkstall, near Leeds, E. Foster Eyre in the chair. A feature of this meeting is that a dinner is a necessary part of the programme, and on this occasion the Hon. Sec. kept up his reputation by providing the members with the usual good cheer. After this refreshment the Hon. Sec., Mr. N. F. Burniston, proceeded to the labour of the evening: the rules were read, the accounts passed, and a report read showing a satisfactory growth of the society, in fact the number of members had nearly doubled during the year. The Hon. Sec. and Treasurer were re-elected on the proposition of Mr. R. A. H. Grimshaw (Hon. Sec. Yorkshire Bee-keepers' Association). Mr. Bateman then proposed the election of President, Mr. Forster being unanimously chosen for this office.

Mr. Dixon got a resolution passed changing the name of the Association to 'The Horsforth and Leeds District Bee-keepers' Association,' it thus considerably widens its sphere of operation, and instructions to this end were at once issued, that a circular be at once prepared inviting bee-keepers in the district to join. Mr. Cousins

of Shipley was elected to attend the county committee meetings in company with the Hon. Sec. One feature of the meeting, which we heartily commend to young vigorous associations, was that the members present undertook to each provide an additional member during this season, and an early meeting was decided upon to hear a paper read by the Secretary.

Great interest was exhibited in a collection of preserved specimens of bees ranging from the humble bee to the Syrians in all sexes and stages from egg to perfect insect, cells of various kinds in all stages, blind drones, &c., were also shown; one of the most curious objects was a common mouse which, having got jammed between two frames, had died, and, as the body decomposed, was removed piecemeal until an almost perfect, dry, and polished skeleton remained, a few small bones were missing. All these exhibits were kindly brought to the meeting by Mr. W. Dixon, of Leeds, to whom a cordial vote of thanks was passed.

IRISH BEE-KEEPERS' ASSOCIATION.

The Committee met on the 5th inst. Present: Mr. Sproule (in the chair), Mr. Gillies, and the Hon. Secretary. It was resolved that the Hon. Treasurer and Hon. Secretary be appointed an Examining Board, with power to add to their number, for the purpose of appointing experts, honorary and professional.

CURE FOR RHEUMATISM.—It is Dr. Terc's cure as explained in the current *Wiener Medicinische Presse*. To have the rheumatic patient well stung by bees—that is the cure. Dr. Terc declares to have applied his method in 173 cases, giving in all 39,000 stings. He claims to have been successful, especially in chronic cases of rheumatism, where the patients, subject to cachexia, had despaired of all remedy. On reading this, the rheumatic patient will be disposed to exclaim:—'Rather the disease than the cure!' But Herr Terc avows that to be stung by a bee is nothing like so painful for the rheumatic patient as for other people. To bring the latter point to the proof it only requires a rheumatic patient courageous enough to get possession of a bee and experiment upon his own person. Apropos of the foregoing, it is to be remarked that men and other animals become less and less susceptible to the venom of insects, the oftener they are stung or bitten by these. He who arrives in a region where musquitoes swarm suffers most at first. The swelling is great and the pain often grievous. After a few days he begins to get easier under the bites; and at the end of a week or so he thinks little about them. So it is the country cousin whose wrists and ankles are swollen on the morning after the first night in town. The habitually bug-bitten rarely swell, feel no pain, and yield nightly nutriment to the tenants behind the wall-paper without giving the matter a thought. The same immunity, says Dr. Terc, comes from being repeatedly stung by bees. He says, moreover, that rheumatic patients, being less susceptible than others to begin with, require to be stung several times before there is any tumefaction or swelling. Let the stinging be continued, and a moment will arrive—so says Dr. Terc—when no more swelling is produced thereby. At that moment, also, the patient is delivered from the pains of rheumatism. *Ipse dixit.—Newcastle Daily Chronicle, February 5.*

PAT BUYS A SMOKER (*he has heard somewhere that a smoker is necessary to subdue the bees; he gets one, and is examining it*): Shure, and it's an illigant poipe ye'll make entoirely, and wid sich a foine large hole ye have to dhraw wid, and a lovely bit of wood to hould by—but, whisha! where does the terbaccy go? (*Turns it over, and at last pulls off the end*). Bedad! it's a terbaccy jar ye are wid hould enough for a wake and niver a poipe at all, but I'll thry ye. (*Puts in all he has, lights up, and sucks contentedly with the nozzle in his mouth.*) Arrah! ye little stinging bastes it's me revenge I'll be taking av yer, for whin ye made me face like a pertatie, and the praste himself didn't know me. (*Squeezes the bellows accidentally, and gets a good puff or two internally.*) Augh, augh, it's—augh—bad luck to ye for a stame injin, ye've clane kilt me entoirely. (*Is about to give up in despair when the local expert arrives.*)—HONEYSUCKLE.

MIND AND ITS MYSTERIES.—It would be very nice if we could put a mind under a bell-glass as we do a beehive, and watch the coming and going of fancies and the laying up of thoughts—sweet fancies gathered from flowers of fact in memory's cells.—REV. JAMES HAMILTON, D.D.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to Mr. J. HUCKLE, Kings Langley, Herts (see 2nd page of Advertisements.)

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

OUR HONEY IMPORTS.

The total value of honey imported into the United Kingdom during the month of January, 1889, amounted to 2847.—[From a statement furnished by H. M. Statistical Department to E. H. Bellairs, Wingfield House, Christchurch.]

HIGH *v.* LOW STANDS.

[1987.] The question of high *v.* low stands for bee-hives is now engaging the attention of bee-keepers somewhat. This question must not be confounded with high *v.* no stands, which some seem to have done. A hive with its floor-board flat on the ground means almost ruin to the colony. Even in such dry situations as are found in the United States, such a misplacement would not be tolerated, whilst here in damp England it would be sheer folly. The amount of moisture which accumulates under a flat-board if laid, say, upon a grass plot is astonishing, especially on a clay soil. Even during summer, under a board so placed, the soil will be found in a fair condition for the little ones to find plenty of material for a good game at 'mud pies,' and also a rendezvous for all the worms tenanting the ground for yards around; their presence will be a sure sign of the hydrous condition of the spot. The question as to whether such is a fit position for a colony can be answered by the veriest tyro in the negative. Not only is it unsuitable for the colony, but the lower portion of the hive will be ruined in two years by rot. The combs, after winter, will be found extensively mildewed, necessitating a removal of the parts so affected, as when badly attacked with mildew the wax becomes rotten and useless. When this condition is reached, the colour will be found to be a greenish, light drab; it will also break into small particles with the slightest touch. Such a portion of a comb will never be used by the bees for brood-rearing or storing honey; it is therefore best for the bee-keeper to remove it, so saving the bees the trouble; but, as 'prevention is better than cure,' never place the floor-board of a hive flat on the ground.

Now comes the question as to whether a hive where the floor-board is 4, 5, or 6 inches from the ground, is

more affected with the damp than one standing, say, 15 inches from same. I must, in the first place, own that I am an advocate for hives as near the ground as is consistent with freedom from dampness, and have for some years past made this an especial study, and am making numerous experiments before I could with certainty give a definite opinion.

We know that a board laid flat on the ground induces dampness just under where it lies; but take the same board and raise it on four short posts, or, better still, on two battens, one along each side; the ground under this will be very much drier after it has been in that position some time than outside the space occupied by it. How is this? Suppose you take a very light downy feather and hang it just in the centre of the underside of the battened board, you will instantly see it endeavour to get out at one end, showing that there is a continual draught under the board, produced by your having formed a tunnel with the battens and board. This draught we know keeps everything dry it comes in contact with. The board being so low down prevents rain driving under. But you will say capillary attraction collects the moisture from the surrounding soil; so it does to some extent, but the draught diffuses it directly it rises, and you will always find the ground drier in such a position than anywhere else. But as the humidity of the inside of a hive was the point that I was most desirous of settling, I manufactured a little instrument with which this could be measured to a nicety. It could be done with blotting-paper, soaked in a saturated solution of chloride of sodium (common salt), dried and suspended over the floor-board, but it would not measure the humidity well enough to suit any purpose, which my instruments did. Having a number, by far the most, of hives raised from 4 to 5 inches from the ground and others from 12 to 15 inches, I placed one of my little hydroscopes in each of six hives of different altitudes—but, mind, with sound joints and roofs—with the result that there was not the slightest difference in the humidity of the atmosphere in either; those having floor-boards, but 4 or 5 inches, being as dry in the inside as those standing 15 inches from the ground. The temperature was exactly the same.

Having settled the above points, the next was to consider what advantage the low hive presented over the high one. In my apiary one advantage could not be reckoned, viz., the chance of high wind blowing tall hives over, as I am well protected from the N. and NW. by a row of high willows, and on the S. and SW. by a very solid quickset hedge. Tall hives in exposed situations are very likely to be blown over unless well secured. By far the greatest advantage in having hives low to the ground is the saving of bee-life just at the time of year when it is absolutely essential for the welfare of the colony that as many lives should be saved as possible during early spring. When March winds are prevalent, I have seen hundreds and hundreds of bees when returning, on failing to secure themselves on the alighting board, blown under hives on tall stands, afterwards perishing on the cold, damp ground. With hives low down this is impossible if the alighting-boards reach the ground, which they always should, thus saving them from destruction and allowing them to be of infinite service in hatching the eggs and rearing the brood so much wanted just at this period. A few bees more or less in a hive during summer is not of any consequence, but during March or April it is of the greatest moment.

When considerable work in the apiary is carried on, the low hive offers great advantages when running bees into hives, as one only has to carry a flat board around to throw the bees on; but with tall hives a box or stool must be carried to each hive to rest the board upon; this means a deal of extra labour. Where the bee-keeper clips the queen's wings, to prevent swarms leaving, it is imperative that hives should be low and have the alighting-boards to reach the ground; this system of preventing absconding swarms is much practised in America. A low hive saves a lot of trouble when taking off the sections, as the bees can be just shaken off in front of the hive, when they will all run in quite contentedly. This cannot be done with a hive on long legs, unless you take a lot of paraphernalia round the apiary in the form of boxes, boards, &c., to form tables in front of the hives. When running hives for extracting, the same advantages apply. A hive without legs is a deal more easy to handle.

We will now note the disadvantages. First, until one gets used to it, it is rather back-aching work stooping down to manipulate the hives; myself, I either kneel or sit upon that portion of my legs where the *tendo Achillis* is situated. Now this is the only disadvantage that I can find out. Everything else is in favour of low hives. Many have urged the disadvantage of having the hives snowed up when so low down. Well, I look upon this as quite the reverse; it saves the trouble of shading the hives during bright weather when snow is on the ground. I never shade the entrances, but just shovel the snow up as a bank over them. This keeps the little fellows nice and snug; they won't even try to come outside when there is such a barrier.

A letter (1955) appeared in a recent issue inquiring why appliance-manufacturers do not produce a low, light iron stand. Such a stand has already been invented by W. L. MacClure, Esq., Hon. Secretary Lancashire and Cheshire Association. He very kindly sent me one about two years ago—it is in use now—to try. It is in the form, when put together, of the letter X made of cast-iron. The two cross pieces are cast separately, dropping into slots in each other, so that when not in use they can be packed in a very small compass. I do not know the price they can be cast for, but of course this would add materially to the cost of a hive. They answer the purpose admirably, and are just the right height from the ground.

Now there is a sort of vague idea that it will not answer to use low hives with alighting-boards touching the ground for fear of toads. My grandmother used to tell me always to walk quickly under a railway arch for fear of its falling in; this latter advice is about on a par with the advice not to allow alighting-boards to rest on the ground for fear of toads. A bee-keeper who allows toads to walk around his apiary in sufficient numbers to be a detriment had better 'take on' with something else where toads don't walk around. We have just a few toads in this district. I have counted hundreds in a walk of a mile, but they don't stop in the apiary.—W. B. Webster.

BEE-KEEPING IN IRELAND.

[1988.] The paragraph that you extract from the *Daily News* of the 22nd of January is interesting so far as it goes, but it does not, however, convey anything like an idea of the completeness of the information furnished in the 'Agricultural Statistics, Ireland,' or the advance that has been made in apiculture since Mr. C. N. Abbott and Mr. Wm. Carr, with the bee tent, made a tour in Ireland at the request and expense of the British Bee-keepers' Association in 1880.

I propose to give a table condensed, from the recently issued Agricultural Statistics of Ireland, showing the number of stocks at work in 1887, and the number carried through the winter 1887–88; also the quantity of honey and wax produced in moveable frame-hives, and in other hives, in the four provinces of Ireland.

Before giving the statistics, I wish to draw attention to a letter in the *Bee Journal* of 1879 from 'S. F. J.' In this year, 1879 (the year of the Kilburn show), there was a famine among the bees in Ireland. He writes: 'I do not see a hive of bees with any one, and I don't

think there are a dozen in the whole county of Wexford, such is the deplorable condition of the bee community in this part of the world.' The following year, 1880, the tour with the bee tent was made in Ireland, and the people were taught how to care for their bees by feeding in a time of famine, and how to take the honey without destroying the bees, and the modern and scientific methods of bee-keeping.

We find, in one of the tables given in the Statistics, that in the same county of Wexford (where in 1879 your correspondent does not think there were a dozen hives), there were in 1887 the comparatively large number of 1174 hives of bees, producing 15,062 lbs. of honey; that out of these 413 were in frame-hives, yielding 5500 lbs. of section honey, 1738 lbs. of run honey, and 55 lbs. of wax. In other hives there were 761 stocks, producing 1274 lbs. of section or comb honey, 6550 lbs. of run honey, and 466 lbs. of wax. It will be seen that there was an average of 18 lbs. of honey taken from the frame-hives, and 10 lbs. from the straw skeps, &c. In the spring of 1880 there were 352 frame-hives, and 513 skeps, &c., containing bees that had survived the sulphur-pit and the winter.

In the statistics just issued, the counties are each given separately. In the table here given, the provinces only are given, but should any of your readers wish more detail, the printed tables issued marked [C—5610] can be obtained for 4*d.* from Eyre and Spottiswoode, the Queen's printers, 32 Abingdon Street, Westminster.

There are other tables published, in addition to the one relating to bee-keeping, showing the extent in statute acres, and the produce of crops, for the year 1888, with observations of the district inspectors of the Royal Irish Constabulary, and of the Sergeants of the Metropolitan Police, who acted as superintendents of the 'Agricultural Statistics.'

It would be a great thing to get a return of this kind made for Great Britain, and it could be done with very little expense by the County Constabulary.—JOHN M. HOOKER, *February 8th.*

IRELAND.—BEE-KEEPING STATISTICS, SEASON 1887.

Provinces.	Number of Stocks at work in 1887.			Number of Stocks brought through the Winter 1887-88.			Honey produced in lbs. in 1887.							Wax extracted in 1887 in lbs.	
							In moveable frame hives.			In other hives.			General Total.		
	In moveable frame hives.	In other hives.	Total.	In moveable frame hives.	In other hives.	Total.	Run.	Sections.	Total.	Run.	Sections.	Total.		Wax from combs in frame hives.	Wax from combs in other hives.
Leinster	3,036	6,047	9,083	2,754	4,756	7,510	20,827	45,970	66,797	59,797	18,435	78,232	145,029	867	2,402
Munster	2,194	6,062	8,256	2,028	4,652	6,680	20,711	33,196	53,907	61,758	19,643	81,401	135,308	944	2,097
Ulster	3,197	6,046	9,243	2,949	4,528	7,477	28,016	42,780	70,796	53,392	15,178	68,570	139,366	1,315	1,389
Connaught	708	1,279	1,987	620	925	1,545	8,343	12,411	20,754	14,004	4,925	18,929	39,683	278	433
Total (Ireland)...	9,135	19,434	28,569	8,351	14,861	23,212	77,897	134,357	212,254	188,951	58,181	247,132	459,386	3,404	6,321

EXPERIENCES, NOTES, HUMBLE BEES, &c.

[1989.] I have amused myself by jotting down a few of my bee-keeping experiences, &c., which, perhaps, you may think worthy of a place in your *Journal.*

Well, first, with regard to the amount of surplus honey secured during the season of 1888, I think we in Ireland have been more successful than our less fortunate brethren on the other side of the Channel; for although in certain districts here the honey crop was a total failure, still in a good many others a greater or less amount of surplus was obtained. Personally I have no reason to complain of results. I commenced the season with five frame-hives and three skeps. These were increased by swarms from the skeps and two frame hives to eleven frame-hives. From one of the stocks and three swarms (which came rather late) I got nothing; but the remaining four stocks and three swarms gave me 310 saleable 1-lb. sections, and about 40 lbs. extracted from unfinished sections, being an average of 50 lbs. per hive. By far the greater portion of this was gathered during a spell of fine weather, which lasted for about eight days in the middle of the white clover bloom; the exception being about two dozen sections, which were filled from the sycamore and fruit blooms early in the season before the weather broke. Now I have frequently noticed inquiries from correspondents in your *Journal* as to the capabilities of swarms for the production of surplus. Well, I have found that a good *natural* swarm hived about May 20, *and headed by a prolific queen of the previous year,* is equal if not superior, to a stock for yielding comb honey.

THE BEST RACE OF BEES.—My bees are all of the type known as 'natives,' but I have often been sorely tempted to purchase a queen of some one of the much-praised foreign varieties, in the hope of improving my stock; but somehow I am possessed of a lingering suspicion that perhaps I might gain very little by the transaction. For is it not admitted that hybrids are vicious? and how would this trait suit me whose bees are kept in a small garden to which children have access at all times? Again, would I be justified in hybridising all my neighbours' bees? And, in addition, do I not secure from my 'natives' large quantities of honey of the best quality? In proof of this latter reason, I may say that before I possessed a frame-hive my bees were kept in large Pettigrew skeps, measuring inside 16×12 and 18×12; and in a good season I have frequently taken these skeps weighing from 70 lbs. to 80 lbs. (gross). In 1887 I made my first attempt at frame-hives; and in that year I took from four *swarms* 290 completed 1-lb. sections, besides about 30 lbs. extracted from those unfinished, yet leaving ample winter stores in each hive. And last, but certainly not least, there is the possibility that in introducing a foreign queen I may at the same time introduce foul brood; a disease which, so far as I know, is totally unheard of in this district, and which, judging from its ravages elsewhere, I have every reason to be in wholesome dread of.

CARBOLISED CLOTH.—I must add my testimony in favour of this agent as compared with the smoker. All last spring and summer I never once used the latter article; but performed all necessary manipulations by the aid of the carbolic cloth with the greatest comfort and ease, and although I never wear gloves received comparatively few stings. For this, and a great many other 'wrinkles,' I am indebted to the columns of the *B. B. Journal,* and in particular to Mr. 'Useful Hints.'

EXCLUDING ADAPTORS.—Of these my experience, although rather limited, has not been such as would lead me to continue their use. In the only two instances I tried them last summer the bees refused to 'adapt' themselves to their circumstances, and I do not intend trying them again. I am inclined to think that when

working for comb honey if you have plenty of room below and full sheets of worker foundation in sections, their absence will not be felt. The full sheets of foundation are, I think, an all-important consideration, for during last summer in almost every instance in which the sections were only three-quarters filled with foundation, drone-comb was built, and drone-brood raised in the vacant spaces, and in this way about thirty sections were spoiled. This occurred with *stocks* only, and as a further preventive, and with a view to satisfy the natural desire to raise drones, I intend, for the future, to insert a frame or two below with only half-sheets of foundation.

Winter Flights.—I suppose it must be admitted that the health of a colony is maintained by these cleansing flights. But there is another side to the question. January, 1888, was very mild, and my bees took advantage of the high temperature to sally forth in large numbers. My employment takes me from home all week, and on returning one Saturday afternoon I was simply frightened to see the number of chilled bees lying about—hundreds in front of each hive. This year exactly the same thing has occurred. A few mild days enticed them to have a general flight, and now the ground in front and around the hives is strewn with chilled bees. Why will they persist in alighting upon the ground? Can it be the result of a general confusion of locality? and yet this should not be so in my case, the hives being all painted different colours.

Wasps.—I have noticed a peculiarity about these rather interesting pests, which I have never seen satisfactorily accounted for. In the spring of 1886 large numbers of queens were to be seen, but nests were comparatively scarce in the following autumn. In spring 1887 queens were scarce, but later on nests were extremely plentiful; while last year hundreds of queens were flying about, and it looked as if a plague of wasps would be the result. Such, however, was not the case—nests being very rare and individually weak in point of numbers.

Humble Bees.—I have a young brother who, during the summer months, spends all his spare time in collecting nests of the humble bee. At one time in the past summer he had close on a dozen colonies, consisting of the three well-known varieties—*Bombus terrestris*, *B. lapidarius*, *B. muscorum*. His 'apiary' presented rather a comical aspect, consisting as it did of old canisters laid on their sides, broken jugs, small boxes, and anything else that could be made do duty for a 'hive.' One of these 'hives' was rather a curiosity. It had originally been a wren's nest in a gorse-bush, but the feathered tenants having departed, Mrs. Bombus took possession and raised a thriving colony. In this state it was found by the delighted 'bee-keeper,' and with a penknife the branch was soon cut to be carried home, and planted among the other lots in triumph. I was particularly struck by noticing the different degrees of temper displayed by these bees—one lot especially (a strong colony of *B. muscorum*) being very bad-tempered. The least vibration of the ground in the vicinity of their nest was sufficient to bring them out to fly, tail first, at the intruder. Others were so docile that you might handle them with impunity. On their nest being uncovered, they would simply turn on their backs and, with the exception of a quick, nervous motion of the antennæ, remain perfectly quiet. It was very interesting to watch *B. muscorum* repairing their nests. Some would be found busily cutting the moss into fine pieces, while others were engaged pulling these pieces with their legs to the top of the nest. I may state that this enthusiast did not keep all these colonies from purely disinterested motives. Far from it. At intervals each 'hive' was visited, and a straw inserted in a cell containing honey, the other end of the said straw being in the proprietor's mouth. Then, 'with a long, long pull,' the 'surplus' was extracted.—H. O., *Dundalk, Ireland, February 8.*

THE WINDSOR SHOW.

[1990.] In reading over the Prize Schedule for above, I notice the compilers have made one important omission, viz., no class for 'British Beeswax.' That no encouragement is given for this article at such a representative meeting as the 'Windsor' must be regretted by many. Seeing the many uses wax is put to, and its commercial value, I trust those who form the Committee, or have charge of the arrangements, will see that wax has its place among the other exhibits. I need only mention how attractive this class proved at the Crystal Palace show last year, when samples were sent from eighteen competitors, as a proof that if the honey classes lacked interest and competition, this made up for it.—John D. McNally, *Springburn, Glasgow.*

CHEAP HONEY.

[1991.] I am very pleased to see, in the amusing colloquial sketch entitled 'A Real Original,' in your issues of January 24th and 31st ult., a remark made which has often struck me, and which the B.B.K.A., and also appliance-dealers generally, would do well to consider: 'Only 6*d.* a pound for your honey after all your trouble and expense!' I was treated to a similar remark in conversation with a bee-keeper of the gentle persuasion, whose bees I drove last September. She informed me if no one drove her bees she sulphured them, and that she was *always able* to get *a shilling a pound* (and not provide a receptacle) for the filthy sulphured production she called honey. (I won't describe how she rid the honey of the wax; you have only to think of the natives of Central Africa as described by Dr. Schweinfurth.) The market is inundated with foreign run honey of doubtful quality (perhaps manufactured glucose), and the comb honey in sections has not nearly the same delicious flavour as good English. Yet we are informed by Mr. Simmins, in his *Modern Bee Farm*, and by others, that for run honey we must expect lower prices. I suppose bee-keepers have come to the conclusion, with 1888 staring them in the face, that in reckoning their profits they must take good years with the bad, and that on an average the *profits* (?) are not so very heavy. If the price of honey is to be lower still, where will the profits be, especially to the amateur? If appliance-dealers wish to sell their hives, &c., would it not be almost wiser for them not to compete with amateurs in the sale of honey, or, at all events, not to under-price the only thing on which amateurs rely for profit, or rather for paying their necessarily high expenses?—Jersey Bee-keeper.

DEFENSIVE WORKS OF BEES.

[1992.] Mr. Bertrand, in his otherwise instructive letter (1920), appears by mistake to have made me responsible for the opinion expressed by a 'Renfrewshire Bee-keeper' nearly ten years ago, which opinion I simply *quoted* to show that the construction of *defensive works* was not peculiar to Minorcan bees. Unlike your correspondent, I have no fixed idea on the subject, and have not been so unwise as to express any; hence, although inadvertently attacked, I do not feel that it is necessary to offer any defence.—C. N. Abbott, *Southall, December 20, 1888.*

POLLEN.

[1993.] In the early part of last summer, I found a hive queenless, nothing but drones in it, and a few robber-bees. The frames were one-third full of honey, the remainder a solid mass of pollen. I was advised to boil them down; however, instead of doing so, I tied them up in paper and put them in my honey-room. Recently, when looking into my hives, I found several

of them had no pollen, consequently no young brood, which I had expected would be there after such a mild winter. Therefore I gave each of these hives a frame of pollen, and the bees have been much brisker and happier-looking since they got it. The pollen is in beautiful condition, not mouldy, and not in the least hard. In future I shall keep all my good frames of pollen which the bees don't want at the time, as I now consider it quite as valuable as frames of honey after a season like last summer, and sealed syrup having no pollen in it.—BEESWING.

SHALLOW SURPLUS CHAMBERS.

[1994.] I am always anxious to freely give my experience of matters appertaining to the good of my bee-keeping brethren. Now, in the first place, we do not all agree as to the use of excluder-zinc, but in no case has it ever failed with me. As I have already said, I worked these supers nine years ago, and have to-day the very self-same supers—never been altered in shape or way. The way I work it is this:—I allow ¼ of an inch between the top of the frames and the super, with the frames close down on the zinc, leaving ¼ inch space at ends of the shallow frames, no strips of wood to rest on top of frames. The zinc is the full size of the surplus box, nailed on the bottom; and then take four strips ¼ inch, placing them all round, and with a sharp stroke drive a pin through them both. Brace comb is quite foreign to me under the surplus chamber, but if there were any strips put, as one might say, to keep the zinc from warping, you would find when you come to take them off at the end of the year, you would have to pass a thin knife under; and what does that mean? It means death to the very bees we are looking forward to for another season. None of that kind of thing goes on with me. I once had it to do at a friend of mine, but since that day I would rather scheme and contrive an hour before using the knife. I as a rule always go in for simplicity, and have at this moment 100 of these shallow frames ready, I hope, for a good go in when the clouds roll by. The size of perforations in the excluder zinc used by me is $\frac{9}{16} \times \frac{3}{16}$.—W. WILLCOCK.

GLASS SECTIONS.

[1995.] As glass sections seem now to be coming to the front, and people talk of cutting up glass bottles to make them, I thought that something could be devised to save this trouble. I therefore cudgelled my brains, and wrote to Messrs. Breffitt, Aire and Calder Glass Company of Upper Thames Street, and requested them to make glass cylinders, open at each end, 2¼ in. radius, or 4½ diameter. This they agreed to do, and will no doubt advertise them. They will hold about one pound of honey-comb.—W. CHITTY.

EXCLUDER ZINC (1977).

[1996.] I see 'Beeswing' has had trouble with his excluder zinc. If it is the proper size I fail to see the fault. 'Beeswing' says that the poor bees must have injured themselves with getting through when full. Well, if a bee could pass full, one would almost think that it could get back empty; but I think it is hardly necessary to have excluders under sections, as they are, if properly managed, excluder enough.—W. WILLCOCK.

Echoes from the Hives.

Honeycott, Hawes, North Yorkshire, February 11th.—We are now having winter very severely here. Snow has fallen to the depth of several inches, and with it frost has set in very keenly. Up to February 1st we had very mild weather, but little sun to entice bees out. I am not sorry for this, as I have often noticed that those that are least out in winter come out best in spring. I think they lose a lot when out in winter; at least, this is my experience. I am wintering on various plans; some have an empty body placed under them, others have 2-in. lifts under, others are without either. I am trying to find out which answers best. All my stocks are in frame-hives except two straw skeps. I have two hives made out of tree-stumps, which hold twenty or twenty-two frames each; that is, when doubled. So far the tenants have done well in them. I may describe them at some future time. All my stocks are wintering well, and have abundant stores. Many hives are dead which belonged to those who refused to feed this autumn. Bees will be scarce here in spring.—JOHN WHARTON.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

EVERSLEY.—*Castings from Hives.*—The crystals thrown from hives are from the syrup. Whilst feeding last autumn we have experimented quite largely upon making syrup, and find that if the syrup is *not* brought to the boil, but only hot enough to thoroughly dissolve the sugar, there is very much less crystallisation; in fact, scarcely any. We have on several occasions noticed the, apparently, grease-spots outside hives, but have failed to find what it is. It is no doubt a form of fæces. No bad results have ever been experienced with a colony so acting.

A PERPLEXED ONE.—1. *Fixed Frame Hives.*—There cannot be two opinions as to the superiority of the moveable over the fixed frame-hive. By using a fixed frame you are going back to the old straw skep system, in fact it is the same. With a fixed frame-hive you have scarcely any control over the colony, and must perforce run the bees strictly on the let-them-alone system, allowing them simply to shift for themselves, as our forefathers used to with the straw skep. 2. *Extracting.*—Each cage of the extractor must be of sufficient size to take one frame only of Association standard size. One full frame in each of the two cages of the extractor will be found quite heavy enough to extract at the same time.

C. G. P.—*Painting inside of Hives.*—No harm will accrue from painting inside of hives, providing the paint is allowed to get thoroughly dry and scentless before the bees are put in. No advantage is gained by painting the inside as a preservative of the wood as the bees provide just as good a preservative when coating, as they always do, the inside with propolis. When an unhealthy colony has occupied a hive, it is advisable, after disinfecting, to paint the inside as a further preventative of infection.

DEAD QUEEN.—Received a dead queen, in a neatly scooped-out coffin, but without any accompanying letter to signify the desire of the sender.

S. R.—*Honeycomb Designs.*—As the advertisement you refer to did not appear in our columns it would be prudent to decline the insertion of your letter; it would be sure to cause an acrimonious correspondence which it is not desirable to invite.

GEO. BEAN.—*Honey.*—We are of opinion that the honey is genuine, and its appearance is very similar to some we have that has been heated. The flavour is very pleasant.

J. B. S.– 1. *Bitter Honey.*—The flavour of the honey is the reverse of pleasant; but we should think that such a flavour would not be imparted to it by the wild flowers mentioned. We rather think, as the season was so bad, and honey so scarce, that the bees must have resorted to some disagreeable and unsavoury sources. 2. *Moving Bees.*—Your bees may be moved the distance at the time stated; but it would be desirable to place a bough or a piece of glass at the entrance, so that they may be induced to note the change of location.

J. E. Roden.—You need not have any apprehensions of foul brood. The cells containing pollen have from dampness got somewhat mouldy. When dried, rub them with a soft brush, and spray with salicylic acid; when required, the combs may be returned to the bees. Is the roof of your hive quite watertight? Look to this, as we fear that the dampness proceeds from this cause. We shall be pleased by your carrying out your intention of forwarding us occasional 'Echoes' from your district.

Inquirer.—*Dead Queen and Bees.*—We consider that the death of the bees, and consequently of the queen, was caused by the distance of the cluster from the stores; and this being so, though these were plentiful, the bees were not able to avail themselves of them. We regret that your address has been mislaid.

O.—*Sugar-cake.*—The last sample of sugar-cake is a considerable improvement on that previously sent. It would be more serviceable if it were slightly softer, though the bees are evidently utilising it as it is. Refer to our directions for making candy in our editorial, 'Practical Work in the Apiary.'

Business Directory.

HIVES AND OTHER APPLIANCES.

Abbott Bros., Southall, and Merchants' Quay, Dublin
Appleton, H. M., 256A Hotwell Road, Bristol.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Burtt, E. J., Stroud Road, Gloucester.
Edey & Son, St. Neots.
Godman, A., St. Albans.
Howard, J. H., Holme, Peterborough.
Hotchings, A. F., St. Mary Cray, Kent.
Meadham, M., Huntington, Hereford.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.
Walton, E. C., 82 Emmanuel Street, Preston.
Webster, W. B., Binfield, Berks.
Woodley & Flood, 26 Donnington Road, Reading.
Wren & Son, 139 High Street, Lowestoft.

HONEY MERCHANTS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baldwin, S. J., Bromley, Kent.
Edey & Sons, St. Neots.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

FOREIGN BEES AND QUEENS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Benton, F., Laibach, Carniola, Austria.
Edey & Sons, St. Neots.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

METAL ENDS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Edey & Sons, St. Neots.
Godman, A., St. Albans.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

COMB FOUNDATION.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Edey & Sons, St. Neots.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.

COMB FOUNDATION MILLS.

Godman, A., St. Albans.

HONEY GLASS MERCHANTS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Blow, T. B., Welwyn, Herts.

A MODERN BEE-FARM;

And its Economic Management.

By S. SIMMINS, ROTTINGDEAN, BRIGHTON.

Demy 8vo., 200 Pages.

Reduced to 2s. 9d.

Post Free.

British Bee Journal.—'This is a useful book for those intending to cultivate bees, more particularly for such as intend to make it a business.'

American Bee Journal.—'It covers the whole field of Apiculture, and is written in a terse and interesting manner.'

Gleanings in Bee-culture (*American*).—'The work contains 200 large pages, beautifully printed on a fine quality of paper. In plan it is excellent, each subject and its subhead being distinctly separated by strong black head-lines, so that a novice can easily find such information as may be desired.'

Bee-keepers' Record.—'We have perused this book with a considerable amount of interest, mainly from the fact of its being the first attempt on the part of a *really* experienced man in the United Kingdom to face the problem "Will a Bee-farm Pay?" . . . . We cordially recommend the new bee book as being on the whole both a useful and reliable one.'

Live Stock Journal.—'Other Journals must deal with this very intelligently written volume from its other sides. . . . . We never saw a bee-book which seemed better worth buying by those who wish to keep bees.'

West Sussex Gazette.—'It is all so very interesting, and plain, and practical.'

'Hazeleigh Rectory, *Dec. 3rd*, 1887.

'The paper, letterpress, and plates, are most excellent. . . . . The treatise appears eminently a practical one, and such as can be "understanded by the people," which is more than can be said of many modern books on our pet subject. I trust you may have a large sale for it, which I do not doubt, as Mr. —— told me he had numerous applications for your book. (Rev.) GEORGE RAYNOR.'

'Laibach, Carniola, Austria, *Dec. 2nd*, 1887.

'The new book came this morning. It is now midnight, and I have spent the whole day with it. You have indeed done well what few accomplish at all—made a book which is full of interest to every enthusiastic bee-master; yet for the beginner a simple, pointed guide to success. . . . . Since Langstroth's book nothing, except Cheshire's magnificent work, compares in interest or value to this. It has given me already more in value than the price of the work. 'FRANK BENTON.'

One who has kept bees for a number of years, says: 'I have just finished reading your book (*Modern Bee Farm*) for the third time, and beg to thank you for the great treat it has been. As I happen to have thousands of acres of heather within easy distance, I am specially pleased with the chapters treating on working for heather honey.'

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

WINDSOR MEETING, 1889.

PRIZE LIST FOR HIVES, HONEY, &c.

To be obtained of J. HUCKLE, Sec. of the B. B. K. A., Kings Langley, Herts.

Exhibits in Classes 1, 3, 4, 5, 6, 7, 8, 9, 10, 11 (sections excepted), must be manufactured by the Exhibitor. Exhibits in Class 1 and in Class 19 to be staged and repacked by the Exhibitor.

CLASS 1.—For the best collection of Hives and Appliances, to consist of the following articles:—One Frame-hive, priced at 15*s.*; one ditto, priced at 10*s.* (*Note.*—These Hives must be fitted with arrangements for Storifying.) One Observatory Hive; one Hive of Straw or other material, not entirely of wood, for obtaining either Comb or Extracted Honey; one pair of Section Crates fitted with Sections; one Extractor, one slow stimulating Feeder, one rapid Feeder; one Smoker or other Instrument for quieting Bees; one Veil, one Swarm Box for travelling, capable of being used as a Nucleus Hive; one Travelling Crate for Comb Honey; five other distinct articles not specified at the discretion of the Exhibitor. Each article to be priced separately. No articles must be added to the collection, nor any portion of the Exhibit removed during the Show. First Prize, 40*s.*; second Prize, 30*s.*

CLASS 2.—For the best Observatory Hive stocked with Foreign Bees and Queen. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 3.—For the best and most complete Frame-hive for general use, unpainted. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 4.—For the best and most complete Frame-hive for general use. The Hive shall consist of (1) a Floor-board on four short legs; two Chambers or Body-boxes, equal in size, similar and interchangeable, both to have porches, with entrances not less than 12 in. wide, that can be contracted at pleasure, each chamber to be capable of holding at least ten Standard Frames, but only one set of Frames with strips of foundation fixed and two division-boards to be supplied. (2) One Case of 4¼ by 4¼ Sections, with foundation fixed and separators, of such size as to admit of its being placed inside the chamber. (3) A substantial Roof, sufficiently deep to cover a case of sections and afford ample protection to the whole Hive, the price of each part, namely, stand and floor-board, body-box, case of sections, and roof, to be given separately, the whole not to exceed 15*s.*, unpainted. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 5.—For the best and most complete Frame Hive for general uses. The Hive shall consist of (1) one Chamber or body-box, containing ten Standard Frames having strips of foundation fixed, two division boards, entrance porch, and floor-board, the chamber capable of being used with a second of the same pattern. (2) One Case of twenty-one Sections, 4¼ by 4¼, with foundation fixed and separators. (3) A Roof sufficiently deep to cover one case of sections at least, the price of each part, namely, floor-board, body-box, case of sections, and roof to be given separately, the whole not to exceed 10*s.* 6*d.*, unpainted. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 6.—For the best Honey Extractor, price to be taken into consideration. First Prize, 15*s.*; second Prize, 10*s.*

CLASS 7.—For the best Honey Extractor, price not to exceed 12*s.* 6*d.* First Prize, 15*s.*; second Prize, 10*s.*

CLASS 8.—For the best pair of Section Racks, completely fitted for use and interchangeable, price not to exceed 3*s.* 6*d.* each. First Prize, 15*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 9.—For the best Feeder for slow stimulating feeding. First Prize, 10*s.*; second Prize, 5*s.*

CLASS 10.—For the best Feeder for quick autumn feeding, capable of holding at least 5 lbs. of food at a time. First Prize, 10*s.*; second Prize, 5*s.*

CLASS 11.—For the best Smoker. First prize, 10*s.* second Prize, 5*s.*

CLASS 12.—For Useful Inventions introduced since 1887. Special Prizes according to merit.

CLASS 13.—For the best 12 Sections of Comb Honey, the gross weight to approximate 24 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 14.—For the best 12 Sections of Comb Honey, the gross weight to approximate 12 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 15.—For the best 6 Sections of Comb Honey, the gross weight to approximate 6 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 16.—For the best Exhibit of Run or Extracted Honey in jars, not exceeding 2 lbs. each, the gross weight to approximate 24 lbs. First Prize, 30*s.*; second Prize, 20*s.*; third Prize, 10*s.*; fourth Prize, 5*s.*

CLASS 17.—For the best Exhibit of Heather Honey (Comb or Extracted), the gross weight to approximate 12 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 18.—For the best Exhibit of Granulated Honey in jars, not exceeding 2 lbs. each, the gross weight to approximate 12 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 19.—For the best Exhibit of Comb and Extracted Honey, in any form, staged on space 4 ft. by 4 ft., height not to exceed 5 ft. above the table. The gross weight of each kind to be stated. First Prize, 60*s.*; second Prize, 40*s.*; third Prize, 20*s.*

The Exhibits in this class to be staged by the Exhibitor.

[A Silver Medal, independently of Money Prizes, will be given for the Exhibit most tastefully arranged.]

CLASS 20.—For the best plan and design for an Apiary of 50 Hives on two or more acres of land, to include a suitable building for extracting and general work. The design to show arrangements for growing Honey- and Pollen-producing plants, attention being given to the value of the crops for other purposes. First Prize, 40*s.* and Silver Medal; second Prize, 20*s.* and Bronze Medal.

CLASS 21.—For the best Diagrams suitable for a Lecture on Bee-keeping, or Technical Lessons in Rural Schools. First Prize, 40*s.* and Silver Medal; second Prize, 20*s.* and Bronze Medal.

CLASS 22.—For the most interesting and instructive Exhibit of any kind connected with Bee-culture not mentioned in the foregoing Classes. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

The Council reserve to themselves the right to publish for Educational purposes any Exhibit entered in Class 20 and 21.

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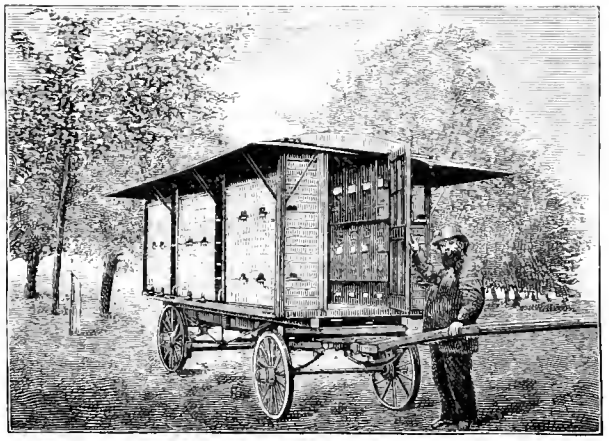
Editorial, Notices, &c.

APIARIES ON WHEELS.

The subject of having apiaries on wheels was introduced by our friend Mr. Wm. M'Nally on page 65. We are pleased to be able to give an illustration of an apiary on this principle. It be-



longs to Herr Gustav Siegle, in Feuerbach near Stuttgard, and has been at work for some time. The drawing is from a photograph, and represents the carriage in which the hives are fixed, and in which the bees remain all the year round. The owner carries on what is called 'Wander-Bienenzucht,' or peripatetic bee-keeping, for he moves his apiary from one place to another to follow the flowering of the honey crops. When he has arrived at the proper destination the horses are taken out, the pole is removed, the entrances are opened, and the apiary left to take care of itself. In the centre will be seen a passage, about three feet wide, giving ample room for manipulating the two rows of hives on each side. It must be borne in mind that our English hives are very much larger, and consequently will be very much heavier than the German hives, and in building such a waggon allowance must be made for this extra weight. It would certainly be useful for taking bees to the heather, as Mr. W. M'Nally remarks, but whether it can be made a paying concern remains to be proved.

FADS.

Fad, a hobby, crotchet, trifling pursuit.

To have a fad is to lay oneself open, to some extent, to be classed amongst those who somewhat unreasonably pursue phantoms; at least, this is a common view in most men's eyes of the faddist. Without being absolutely what our American friends term 'a crank,' the faddist is, on his own particular whim, certainly considered just as cranky as he more or less vigorously pushes his pet notion towards the verge of what the spectator considers reason and common sense. The plain practical man despises him, and holds contemptuously aloof from all his tribe, whom he considers as lets and hindrances to the quiet and successful practice of his particular industry. All the family of fadders are to him chimera-pursuing enthusiasts, who are constantly devising expensive traps by means of which he, and the rest of the ignorant, are to be impoverished. Faddists are a wisish sort of people generally, those who are bee-keepers particularly so, but there is always the fly present in the ointment, they must always have some pet patent idea in their mind, of which the practical man has to beware if he desire to keep his money in his purse. At one time it is a new style of frame, at another a new hive, now it is a new smoker, a super, or a section, but before it is pronounced a success by the public, the supercilious sneer of the sceptic brands it only as 'another of Jorkin's fads.' If we could only have a museum, a bone-house of dead, gone, and exploded bee-fads, what an instructive school it would prove to the young bee-keeper! What sleepless hours of excited imagined discovery would be saved him if he could be made acquainted with what had gone before! Probably there are few living bee-keepers who have not invented in their day a new hive, entirely different and better than any previously contrived, different and better only so long as he kept his idea quite to himself; immediately past history shines on it, it vanishes into thin air, it had been 'done before.' The richest necropolis we could search for the remains of defunct fads, we mean such as really *got* born into the bee-keeping world, we imagine would be in the stores of the appliance-dealer, the man who is supposed to have everything in stock which has lived long enough to be advertised, *his* catacombs would be rich of relics. The dealer will also, in all probability, have a choice assortment of anathemas on inventors and their brain-children. As for the hater of fads, and the despiser of their authors, he is, if we can but get a true view of his heart, almost always partially

consumed with an intense self-conceit begotten of that gravity which simulates wisdom, and it is only after some new idea is absolutely adopted by all advanced bee-keepers that he slinks into the rear ranks himself, grumblingly protesting that after all we shall come back to the old way; *his* bees always wintered better, and gave him more returns of whiter-capped honey when he had nothing but skeps and straw capes; besides, what could be purer and better-flavoured than his drained honey of thirty years ago, as compared with the 'extracted' of to-day, containing goodness knows what proportion of brood-food slung out with the rest? This discontented pendulum grumbles out that carbolic and fustian fumes taint the honey, *he* can taste it if others cannot; besides, who so competent to dogberryise as he who was a bee-master before we knew a bee from a bull's foot?

'New-fangled notions' (that's the phrase) are an utter abomination to the men of this school, and it becomes a matter of grave suspicion whether this feeling does not arise from an unknown quantity of jealous ferment, jealousy that the originators and promulgators of fads are doing more, proceeding by longer strides, towards perfecting the art of bee-keeping than was the case with them in their day. Submit a new idea, and you get the inevitable, sickeningly familiar rejoinder that 'there is nothing new under the sun,' 'what is new is not true, and what is true is not new;' did not the Egyptians move their apiaries with the seasons and floods, and the Brobdignagians clip king's wings and smoke in at one end of cylindrical hives, and endless other things, when the world was young? They then and there issue a wholesale condemnation of everything new-fangled *not devised by themselves.*

Would that such intensely practical brethren could, like some Gulliver from remote transastral regions, have surveyed the initiatory experiments of Father Langstroth with his bar-frames, Von Hruschka with his honey-slinging, or Sir John Lubbock calling his bees early every morning for a week, and marking the sentinels, or seemingly playing with bits of coloured glass; or again, trying to frighten bees with the sound of a violin, a shrill pipe, a dog-whistle, tuning-forks, to say nothing of shouting at them, would they not have turned disdainfully away, wondering for what hidden purpose a hitherto kind Providence had afflicted this race with so many visionary enthusiastic curses? Fancy bee-keeping without the ingenious fads imported from the west! We will therefore ask all who feel themselves sapient quidnuncs to bear with the faddist, and be gentle unto him, for it is he alone who, as an inventor and experimentor, prospects for us the road of the future; he is the man of idea (rash sometimes, if you like), without whom no science can progress; he finds the gems for others to perfect *and profit by*, and it is only by giving him his proper place as a good avant-courier that we can prevent ourselves slipping back into the way our fathers trod.

HOW TO IMPROVE THE BEE PASTURE.

The Japanese Sophora-tree (*Sophora Japonica, L.*)

The Japanese sophora-tree (*Sophora japonica, L.*) is an ornamental tree, growing to a height of from forty to fifty feet, with hairy, dark green, juicy leaves, and paniculate blossoms of whitish-yellow colour, the crown of the tree having a beautifully rounded shape. The cultivation of this tree is somewhat difficult, as it is very sensitive to cold when young. According to Schmidlin (*Book on Gardening*, p. 210) a loose, fertile soil is required for its proper growth, in a sunny and sheltered position.

The sophora-tree has a great similarity to the acacia, but what makes it especially valuable is, that it bears flowers, not like the latter, in May, but during the months of August and September, when in most districts bees are compelled to remain in complete inactivity for want of pasture.

There is a sophora in the Enzheim Cemetery, which I mistook for a variety of the acacia for many years, until I was put right by my bees last summer, when I happened to notice one day in August that this tree was covered with blossoms, and visited by thousands of bees and other insects on the look out for honey. A considerable quantity of blossoms was lying on the ground, surrounded by a large number of bees. I need hardly say that this discovery was of great interest to me, especially as bee-pasture is rather scarce here in the summer. I described this tree to Mr. Beinert, a florist of Molsheim, who pronounced it to be the Japanese sophora, and this was confirmed by Mr. Hodel, nursery-garden proprietor of Holzheim, by whom the tree in question had been supplied years ago.

The sophora has not hitherto been very extensively cultivated, and bee-keepers in particular have not given this tree the attention it deserves as an excellent source of honey. Although it has from time to time been favourably mentioned, it has remained more or less unknown—to the disadvantage of bee-keepers.

The *Eichstädter Bienenzeitung* for 1885 contains the following reference to this tree by Count Stosch, who writes, page 124, 'The Japanese sophora may be specially recommended as an excellent tree from which bees are able to gather honey in the autumn. It is also a very beautiful ornamental tree, its leaves and blossoms resembling those of the common robinia (*Robinia pseudacacia*), producing plenty of blossoms, and continuing in flower for a long time in August and September. The bees are uncommonly fond of the sophora, and visit it from early in the morning till late in the evening. The individual blossoms fall off very quickly, often before they are completely developed; yet even these the bees do not abandon, but roll them about on the ground, holding them with their legs while extracting the honey. The sophora prefers a sheltered situation, but is not more sensitive than the nut-tree. Young trees unfortunately do not bear flowers the first few years.'

This tree is also mentioned by Dr. Aleford in his excellent work *Die Bienenflora Deutschlands und der Schweiz*, 1863, page 169; and Friedrich Huck, in his recent work *Unsere Honig, und Bienenpflanzen*, 1887, recommends on page 91 that attempts should be made to cultivate the sophora on account of its flowering so late in the season.

The sophora certainly deserves the careful consideration of bee-keepers. A single tree would perhaps prove of little value, but the case would be different if avenues of these trees were formed, for example, alongside the principal roads of a district, in the same way as lime-trees have been planted on the roadside in many places, especially in Alsace-Lorraine during the last few years. Just let us consider that the sophora flowers in August and September, at which time there are no longer any flowers to be visited by bees in these woodless plains. What an advantage it would be to bee-keepers if their colonies, which are generally still in full vigour during these months, had an opportunity of collecting their wants for the winter themselves.

The small hairs attached to the leaves of the sophora allow of the passage of air and light through the crown of the trees, which therefore do not throw so dense a shadow upon plants growing near them as most avenue trees. This is another point in favour of the sophora. Every bee-keeper therefore, who has an opportunity of supplementing his bee-pasture by the addition of the sophora should lose no time of doing so. Even if unable to derive much benefit from the cultivation of this tree himself, as it bears but few blossoms during the earlier years of its growth, he would earn the gratitude

of his successors by encouraging the culture of the sophora.

In Alsace it has hitherto been looked upon as an ornamental tree only. A splendid specimen of it may be seen in the Zoological Gardens at Strasburg, and another in the gardens of the Training College for Schoolmasters at Colmar. Mr. Beinert, of Molsheim, also possesses two large sophora-trees, which are visited by numbers of bees every year, and of which he says he cannot speak too highly, as they yield much honey for his colonies.

Sophora pendula is one of our finest kinds of trees, with elongated and pendulous branchlets, which extend quite down to the ground. It is particularly suitable for burial-places, and the tree in our cemetery was probably planted there by mistake for Sophora pendula.

In conclusion, I may add that the sophora in its native country is said to furnish the beautiful yellow dye for the imperial robes of the Mikado.—DENNLER, *Enzheim, January*, 1889.

DERBYSHIRE BEE-KEEPERS' ASSOCIATION.

The eighth annual general meeting of this Association was held at the Town Hall, on Friday afternoon, 8th February, Mr. J. L. P. Barber (Stanton), presiding. Amongst those present were Messrs. Handley, Coxon, W. T. Atkins (secretary), Clark, Rowlands, Wilks, Burgin, Cooper, Turton, &c.

The secretary read the annual report as follows:—'The committee, in presenting their eighth annual report, have much pleasure in being able again to report the society's progress. During the past year we have had 99 new members joined, thus showing the growing favour of its benefits to all classes of bee-keepers in the county. After paying all expenses, we have cash at bankers, 35*l.* 4*s.* 3*d.*, against 29*l.* 16*s.* 6*d.* last year. Mr. W. Handley, expert for the northern division, in his spring tour, made 188 visits in 19 days, and examined 442 bar-frame hives, and 177 skeps, total, 619; and enrolled 32 new members, and collected 11*l.* 9*s.*, and found stocks in a forward condition, and ready for a large amount of work. The autumn tour commenced on September 4, and he made 129 visits in 17 days, and examined 365 bar-frames and 173 skeps, total, 538; and enrolled six new members; total, 1157 hives in 36 days, at a cost of 10*l.* 18*s.* 6*d.* Reports the unfavourable weather, and scarcity of honey. Almost all the stocks had to be fed, and fears many will not be able to take sufficient to keep them until spring. In some districts the bees of many non-members were dying out. Mr. W. Coxon, expert of the southern division, made in his spring tour 198 visits in 22 days, and examined 942 hives. Of this number 124 have been lost during the last winter and spring. The losses in skeps were much greater than in bar-frames. Work was much impeded by unfavourable weather. Enrolled eight new members. He commenced his autumn tour on September 5th, and made 91 visits in 13 days, and examined 323 hives—being 200 bar-frames and 123 skeps. Eleven stocks were lost during the summer through the bees being unable to gather sufficient to sustain them, owing to the unfavourable weather, it being scarcely possible to have been a worse season. Total, 1265 hives in 37 days, at a cost of 10*l.* 16*s.* 6*d.* Total cost of experts, 21*l.* 15*s.*, against 19*l.* 13*s.* The annual show was held as usual by the kind permission of the committee of the Derbyshire Agricultural Society, on their grounds at Derby, on the 29th and 30th of August. The number of exhibits were not so numerous as last year. The hives and appliances were good. The quantity of honey very small; mostly gathered in former years. The present season's honey was sold at an advanced price, 1*s.* 6*d.* per pound being readily made. The judges were Mr. Walton, of Preston, and Mr. Fisher, of Farnsfield, whom the committee thank for their impartiality in awarding prizes and lecturing in the bee tent. The committee thank the Rev. G. Shipton for his valuable lecture at Borrowash, also to Mr. J. H. Richardson for auditing the accounts, and all the district secretaries and others for their valuable help.'

The chairman, in moving the adoption of the report and balance-sheet, expressed his pleasure at the fact that they were 'progressing.'

A vote of thanks was accorded to the retiring officers on the proposition of Mr. Rowlands, seconded by Mr. Cooper.

The Duke of Devonshire was elected president on the motion of Mr. Clark, seconded by Mr. Handley, and the names of Messrs. E. B. Salt (Newton Solney), H. Wardle, M.P., A. Jacoby, M.P., and T. Roe, M.P., were added to the vice-presidents.

Mr. J. P. L. Barber was reappointed chairman, Mr. G. Copestake treasurer, and Mr. W. T. Atkins secretary. Messrs. Handley and Coxon were elected experts; and Messrs. Copestake, Holbrook, and Atkins, an emergency committee for transacting special business.

The Chairman stated that it was proposed to hold the agricultural show in future in Osmaston Park, and the Agricultural Society had promised to accommodate the bee-keepers.

Mr. Handley proposed, and Mr. Cooper seconded, that the annual exhibition of bees be held at the agricultural show.

The annual draw for two 10*s.* hives resulted in the success of Messrs. Hodkin (Endsor) and W. Burgin (Pentrich). Mr. Coxon was asked to supply the hives.

Foreign.

NEW ZEALAND.

Mr. R. Dawber, German Bay, furnishes the following information about bee-farming:—I have got 84 hives (bar-framed), the return from which last season averaged 1 cwt. each box, thirty of which averaged 200 lbs., and a few of the very best 250 lbs. The bees, for the most part, are the ordinary black bees. I have got a few hives of Ligurians. It is an error to suppose that these bees prefer robbing other bees to working honestly for their own living. I find, however, that they cross with the common black bee. The above is very satisfactory testimony in favour of bee-keeping; eighty-four boxes produced 1 cwt. each, equal to 4 tons 4 cwt., which, at the average price, realised 4½*d.*, equal to 176*l.* 8*s.* 0*d.*—*Lyttleton Times, Canterbury, N.Z.*

SOUTH AFRICA.

I was ignorant enough of all that related to bees. I knew there were 'workers,' 'drones,' and a 'queen,' but I could not have distinguished the latter, though I could the two former. My wife and I went to live in an old house that seemed to be 'bee-haunted.' A desperate attempt had been made to get rid of the bees under the floors, with but partial success, for bees were flying about the house, much to my wife's terror. However, they left after a time, and for about two years we were comparatively free of them. Meantime an older missionary, who had formerly lived in the house, excited my desires by stories of the quantities of honey he had taken from bees under the floor—thirty pounds of strained honey at one time. Another missionary told me how his son had 'boxed' some bees, which, in the course of time, had 'waxed fat,' and sallied forth upon men and beasts, stinging some of the latter so severely that they died. I determined, however, I would have some bees, and soon my opportunity came. It was in the fall of 1883 (it was fall there, but would be spring here). It had been a good season for honey, and I remember the native

brought large quantities to sell. They, of course, had got it by smoking out the wild bees, and robbing them of their honey. In seeking new homes many swarms came to our house, and built their comb under our floor. Here was my chance, and I improved it. After a swarm had been at work some time, I took up the floor one night, and, with the help of a native boy, secured the queen. What a time we had! Though I was well muffled in mosquito netting, and had my hands covered with gloves, yet the bees found an opening, and crawled on my neck and under my sleeves, and up my trousers. After a time the bees became quiet, and then we searched for the queen. The natives call it the *inkasi*, the king; and when I would tell them it was not a king, but an *inkasikazi*, a queen, they were too polite to contradict, but still smiled incredulously.

Well, that first box of bees was secured and put under an orange-tree in the garden, but the bees had no notion of staying. They came out, and I put them back. I had clipped the queen's wings. I do not remember how many times I put those bees back in the box, but it was more than a dozen. As soon as it was warm in the morning, out they would come. I put them back, only to find them at dinner time in a cluster on the ground. It seemed to be a trial of perseverance, with the chances on the side of the bees. I finally left them on the ground, and gave them up. But several days after, finding them still there, I tried again, and this time succeeded, for the bees remained and went to work; but it was well on toward two weeks that I had been working over them. Meantime other swarms had come into the house. During that season they came into five different rooms, and several times the same room was occupied time after time by bees.

Once bees came into a room and hung in a cluster from the window-frame, and began to make comb there; then, thinking better of it, they went away.

Once while we were at dinner, a large swarm of bees came crawling under the door, and through a crack; down under the floor they went. Just twenty-four hours afterward I took them up, and they had made a large pail full of comb, much of it containing honey. As the result of the six or eight swarms of bees that I had 'boxed,' three remained to me and prospered. I had two rough hives, made with moveable frames after a model given in the *Encyclopedia Britannica*. As the bees fixed the frames pretty solid, the term 'moveable' was a misnomer.—H. D. Goodenough, *Clifton Springs, N.Y.* (*The Bee-keepers' Guide.*)

CANADA.

Annual Meeting Ontario Bee-keepers' Association.

The annual meeting of the above association was held in the Council Chambers, Owen Sound, Jan. 8th and 9th. The chair was taken by the President, Martin Emigh, at two p.m., Jan. 8th. The Association has made good progress during the year, having a membership of 228, an increase of 78 over the previous year; and it is now the largest bee-keepers' association on the American Continent.

After deducting the sums granted to affiliated societies, Toronto Industrial Exhibition, secretary's salary, a queen to each member, and necessary expenses, a balance of $455.75 remained on hand, $200 of which has for some time been appropriated to secure a copy of *Langstroth on the Honey Bee*, which has for a long time been expected by bee-keepers.

The President, in his annual address, drew attention to the prosperity of the Association and the success of the new plan of affiliating county associations. He recommended several amendments in the constitution and bye-laws of the Association. Reference was also made to the increased accommodation offered by exhibitions, notably the Toronto Industrial.

Mr. S. T. Pettit gave a paper upon 'Priority of Location,' the chief claim being that the specialist should secure his right to the nectar in his neighbour's fields by paying a small tax, and that one bee-keeper should respect, or be made to respect, the man's claim who had gone to an expense to embark in bee-keeping.

Mr. Allen Pringle gave a paper upon 'Bee-keeping for Pleasure and Profit.' He claimed that bee-keeping should be combined with some other business, and especially farming, and that but few bee-keepers kept bees for pleasure only, but mainly for profit.

Mr. S. Corneil gave a very good paper upon 'Ventilation for Hives in Winter.' Mr. Corneil strongly advocated ventilation and pure air for the hive, he showed by experiments the action of currents under various temperatures, and was strongly in favour of two ventilators, or failing this, one upright ventilator, 2 to 3 inches; he also advised putting a 2 to 3 inch rim under the brood-chamber, having one ventilator at the upper side of the frame end, and another at the lower side of the rear end of rim.

Communications were read from Sir Charles Tupper, Hon. A. M. Ross, and Mr. Thos. Wm. Cowan, thanking the Association for electing them honorary members.

The meeting was unusually small, but the poor honey seasons have left many unable to attend. A good honey season will brighten the bee-keeper wonderfully.—R. F. Holtermann, *Brantford, Canada, Jan.* 11, 1889.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts* (*see 2nd page of Advertisements*).

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

MY ROOF BEES AND SOME OF THE LESSONS THEY TAUGHT.

[1997.] It is now, alas! thirty odd years ago since I learned the A B C of apiculture. I was much interested in the glowing accounts an old slater gave of the washing-tubs full of honey-comb he had removed from the colonies long established in the pavilion roof of an old mansion in an adjoining parish. I was also well aware how a large proprietor in our own had opened up one of the strong colonies in his similar style of roof, and a board with buttons fitted in. It was a special pleasure to this gentleman to send up his butler, who smoked, and have a supply of honey-comb warm from the hive set upon his table to entertain visitors with. The 'colonies' in our own pavilion were meantime yielding nothing save an occasional swarm from the more contracted space, flying off to repeople defunct skeps of a farmer's wife. I became ambitious, not, as in the first instance, to kill the goose for her golden eggs, but to work my attic tenants humanely, and to some purpose, parental chaffing notwithstanding as to the throwing away money on tradesmen's wages. I began with the resolve to do all myself, save the first opening up. During a hard frost spell, with the assistance of the old slater referred to, we severed the lath-and-plaster immediately below a couple of colonies at a north aspect. They were temporarily papered in. After I had made careful measurements of the combs and spaces between, with all haste I constructed several racks of moveable bars. I was thus a 'movist' from the start. It was capital practice

for steadying the nerves of the young bee-keeper, fixing these racks, stretched on one's back, with upturned, exposed face, and the aid of a shaded lamp, one eye on the black, seething mass over head, the other the revolutions of the screw-driver. Any odd sharper click, down came the droppers at once. When the moveable bars were fitted, I could not but admire the great exactitude with which the 1⅛ inch bars and ⅜ of an inch space tallied with their works overhead. I next constructed backless boxes to fill the outer space, and through their ample windows had much interest in watching their progress the following season. Being 'furth' the ceiling, were so planned as to afford facilities for supering and nadiring to one's heart's content. From these two colonies I reaped that first season ¾ of a cwt. beautiful super comb, of which I was not a little proud.

A subsequent replastering of our attic flat afforded me a good opportunity to make observations. I found the roof in the olden times had been honey-combed all round at various aspects from north to south; and however varied the exposures taken up by the incoming colonies, their combs were in every case built with unswerving regularity at *right angles* to the entrance, even although, like the two first colonies opened, 'Boreas wi' his blasts did blow' right into them. With the knowledge gained so long ago, I would never think of placing combs across the entrance.

Another point made a considerable impression on my mind, the extreme length or depth of combs of my roof colonies. I carefully measured the comb foundations of what must have been a magnificent colony at a west aspect, probably of last century, and found its combs had exceeded *six* feet in depth. This shook my faith in Nutt's collateral system, belauded by some of my bee authors. A couple of sets of his boxes I had previously made, placing the 'pavilions of nature,' when stocked, in a staircase window, but found Nutt's ventilating ideas, like those of J. H. Payne's glasses, were utterly erroneous. First thing the bees did to show their detestation was to propolise up the perforated tubes in both; warmth, not coolness, the great desideratum to secure super combs, and collateralism was for ever shelved. Fresh lumber in my workshop!

That huge colony, 72 × 14 inches, haunted my dreams; but how attainable? One afternoon, passing down Buchanan Street, Glasgow, I came upon a never-to-be-forgotten sight, an Italian warehouse, its windows filled, and its tier upon tier sloped counters laden with the most gorgeous octagon super honey-comb, massively rich, perfectly straight, and dazzlingly pure. My home supers, of which I had not been a little proud, paled into nothingness before them. The owner valued his stock comb at 200*l*., principally, he told me, the product of one county,—aye, and its favourite hive, the Stewarton, which, strange to tell, my many authorities upon the bee seemed in blissful ignorance of its very name. I got the addresses of several of the Ayrshire fraternity where I might have an opportunity of seeing the Stewarton at work, found the internal width of super 14 inches, as with my roof bees, and the depth of the breeding department in keeping with the growth of the colony, charmed me.

I took an early opportunity of visiting Stewarton, and what a treat making the acquaintance of several of its leading kindred spirits! Round all the makers, but not a box to be had ready for love nor money. I trudged on to next town, Kilmarnock, and again was likely to be beaten, till advised to try a promising name, 'Bee Bank.' This proved the residence of one of the magistrates, bee-keeper of course. I found him at dinner, and in his drawing-room saw some beautiful glass trophies of honey-comb, and from the window his handsome octagon bee-house. Of course the Bailie did not sell hives, but directed me to a Mr. Robertson, foreman in a foundry not far off. He had dined, and I found him in his aviary, among a beautiful lot of gold and silver pheasants. We crossed to the opposite side of the garden, and were in the apiary, at once over head and ears in bee 'crack;' found him very enthusiastic, and well up; learned from him the massiveness of super combs was due to broad bars, their straightness to 'comb-points.' This was prior to foundation days. I objected to the broad bars in the breeding boxes, maintaining whatever marred a 'free run' meant loss of time, and with it honey. I believe the broad fixed bars of my new purchase were at once knocked off, and moveable inch and eighth substituted. The same principle afterwards induced me to adopt full triple entrances to all my Stewartons, which no doubt materially aided my large harvests, and from the free under ventilation thereby afforded I have not looked upon a foul cell since in my apiary.

To prove our little favourites' repugnance to a *draught*, I have wrought a handsome mahogany observatory of my own design for the last twenty-three years; and, curious, every perforation of zinc on the top has been propolised up tight, while not a perforation has ever been closed below. I once thought otherwise, and paid the penalty of my temerity.

The London Exhibition of 1862 brought with it that invaluable German invention of 'embossed wax-sheets.' Some of them found their way north. Their value was at once appraised, electrotypes taken, plates cast and mounted, foolscap copying letter presses throwing off copies by the hundred long before the invention was heard of in America, and the roller form of printing thought of. To 'A Lanarkshire Bee-keeper' I believe is due the credit of printing the first sheet from a Scotch made machine, although Mr. Alex. Ferguson, of Stewarton, and Mr. Robertson, Kilmarnock, above referred to, did much to disseminate through all leading apiaries with us, and founded block letters and many ornamental designs, besides helping the beautiful table displays at the Crystal Palace show of 1875.—A RENFREWSHIRE BEE-KEEPER.

OLLA PODRIDA.

[1908.] *Impervious Quilts.*—I find in 1st issue to hand of *Gleanings in Bee-Culture* (American) the opinions of sixteen of the most eminent bee-keepers in the United States have been solicited, as to the best material to use as quilts next the frames; of these, ten advocate impervious quilts—four of these simply use the flat cover of the hive, which, being wood and covered with propolis, are impervious; woven quilts are advocated only by four; the two remaining are uncertain, thus making sixteen opinions in all.

Winter Passages.—Many bee-keepers treat the advice so often given, as to the formation of winter passages, contemptuously. Well, they no doubt have a lesson yet to learn, and will in course of time, after experiencing a loss or two by this omission, think better of it. Their utility may be reckoned at about five per cent, that is to say, five hives out of a hundred not so provided will be ruined by such omission. I have found this to be under rather than over the ratio. A striking instance occurred in my own apiary during the last frost. We had a very fine warm day, and noticing one hive from which the bees were not flying, I raised the quilts; the cluster of bees were almost dead, with not a particle of stores within reach of them; I had omitted, through some oversight last autumn, to provide winter passages in this hive; dropping some warm honey on the cluster, I laid two or three sticks across the tops of the frames, and quickly replaced the quilts. Yesterday (February 17th), a very fine day (64° Fahr. in the shade), on examining again I found the cluster had made good use of the passages so improvised, and had moved over the tops of the frames to another portion of the hive where stores were in plenty. Thus I saved a stock by pro-

viding passages over the combs. The saving of this one stock would amply repay me for the trouble of providing winter passages to all others.

Early Pollen Gathering.—Bees were carrying in pollen in my apiary on the 5th December, 19th January, and 17th February. On the 5th December I saw swallows —three (*Hirundo urbica*)—flying; Markham gives an instance of their appearance on December 8th; wall-flowers and coloured primroses were in bloom. On the 19th January, wall-flowers, primroses, and snowdrops in bloom; and on the 17th February, together with the before-mentioned flowers, I saw a few catkins of the willow in the surrounding copses.

High v. *Low Stands.*—One reason I notice given in favour of high stands is that bees in a state of nature choose holes high up in trees or buildings. They do so mostly, but not always. May this not be that nearly all *natural* hollows, in this country, close to the ground are damp? Where dry hollows are so found, bees do not exhibit any antipathy to them, as evidenced in California, a very dry climate, there bees (*Apis mellifica*) are not unfrequently found tenanting the ground. At the side of a bakehouse I found a colony of bees had taken possession of a hollow in the wall within three inches of the ground. Between the double walls of a dry wooden shed, but a few miles from here, a colony of bees can be seen—I saw them three seasons ago—a glass window having been inserted in the wall close to the colony, whose combs are but a few inches above the surrounding soil. The flight of a bee, as well as most aërial creatures, is usually at some elevation that obstacles may be avoided; this high flight would necessarily tend to their finding a home at some distance above the ground. We find that creatures in a state of nature invariably adapt their ways to suit surrounding circumstances. The house-sparrow, if continuously interrupted in its resting-place in the gutter-spout or thick ivy, will betake itself to trees; yet it rears its brood in as satisfactory a manner as it would in its usual nesting place. Again, where sand-martins' holes are obtainable they will nest in them, thus really altering their character entirely, becoming cryptogamous. We will take the case of the *Hirundines*. When the Hudson Bay Company erected Fort Chepewyan these were found building their nests high up on the face of the rocky cliffs, but, soon after the erection of the fort, commenced their nidification under the eaves of the same, but six feet above a promenade surrounding the building. The wheatear (*Saxicola œnanthe*) builds its nest in quarries and rabbit-warrens, but where such are not obtainable, will do so in a ploughed field. We all know the early propensity of fowls to roost in trees, high above the ground, but yet by placing them in low sheds, as usually done, we do not impair their powers of egg production but rather by so doing increase it; all fowls that are allowed to roost in trees are later before commencing to lay. Why should we then quote the natural instinct of any creature as an evidence in support of any particular method of rearing or harbouring it? Rather should we endeavour to improve upon such instinct in order to bring it further within our (man's) influence. If the natural instinct of bees prompts them to construct their dwellings at an elevation, should we not—if we are to follow nature—build our apiaries as the aërial villages of the Papuans and other tribes of New Guinea are constructed? Would it not be grotes—— no, picturesque? Fancy an apiary on stilts with a nice, little, but long, ladder reaching up to each hive! How about the asthmatical or adipose bee-keeper, or wooden-legged apiarist? Just picture a vicious lot of Cyprians with their 'backs up' at the same end of the ladder as yourself; many bee-keepers would want a truss or two of straw at t'other end!

Let us follow nature as far as it suits our purpose, but no farther.—W. B. Webster.

BEGUN AGAIN!

[1999.] The last echo I sent you was four months ago, snow falling on October 1, the first snow of winter. We are now having our second dose, the intervening time being noteworthy as of even mild temperature, during which bees consumed very little stores. This was very fortunate for those who had doubts as to the sufficiency of the winter food, for it enabled them to snatch several opportunities of slipping a cake of candy under the quilts of such stocks as were found to be running short. I fancy you will have many of your correspondents talking again of their blizzards. I have been experimenting with stocks put up with varying quantities, from 10 to 30 lbs., sealed stores, with the result that all were alive and doing well on January 18; and though none were really short of food, those stocks were strongest which had most stores to begin winter with, from which I deduce that it is possible to winter and come through all right on a very small quantity of food, yet *plenty* of food secures strength and vigour; we should therefore avoid trying minimum experiments when cheap sugar enables us to get maximum results. All my stocks are on right-angled frames, covered with enamel cloth, this being well covered with warm quilts, entrances full width. Those hives having double walls, filled with cork-dust, have come out best, those having a good air-space the next, free air-space the next, and single walls turning out the weakest stocks of all; these results also confirm me in the theorem that plenty of air, *impervious* but warm covering, thick, non-conducting walls, with abundance of food, are the conditions for successful wintering required in the garden of 'the Hut.' Spring management is altogether another matter. I may be chaffed, now that 'fads' are so much talked of, when I confess that in making some candy I could not resist the temptation of giving my beloved bees a taste of joys to come:—I went to the medicine chest and got and gave them a taste of Ess. Pip. Menth., which I mixed in the well-skimmed pure candy, just as it was getting nearly cold. The medicinal effect of this must be beneficial, though there is a slight danger of robbing and undue excitement if the weather permit much flying. I have had none yet, such stocks as had the treat being strong enough to deal with depredators. It may be well to mention to all such as are similarly inclined, with regard to peppermint candy, that where, as in my case, one has many olive-branches hanging around, the consumption of the candy cannot be confined to the bees.

'Amateur Expert' has tried the boiler felt I recommended some little time ago 'In the Hut,' and tells me he cordially approves of it.—X-Tracton.

RAPID FEEDING.

[2000.] So friend Abbott has put his foot down on rapid feeding, and goes on to set forth the various ills to follow in the train of such a mad practice. But does not our veteran bee-master forget that there is 'a time for all things?' Doubtless many leave the often necessary work of autumn feeding until it is so late that mischief is almost sure to follow rapid feeding if carried out at all carelessly.

It may surprise Mr. Abbott when I state that I have fed up a large number of colonies about the 20th of October, giving each something like 20lbs. during the course of two or three days. Nearly the whole was capped by the end of the month, and none of the evils he enumerates followed this wholesale late feeding; but the food was given just as hot as the bees could start at it, and the whole was stored while yet warm, otherwise the operation could not have been successful. However, I do not by any means recommend late feeding; the foregoing only shows that it can be carried out at a late date in case of emergency; but it is far more satis-

factory to bees and bee-master alike to get it over early in September, while my own preference is to have it done before the end of August, and so giving the bees every opportunity of settling down quietly before winter.

Rapid feeding carried out in August cannot in any possible way interfere with the welfare of a colony; and if I remember right, when Editor of the *British Bee Journal*, in one of the early numbers, Mr. Abbott declared that bees should be fed up in August; his reasons being that, while still warm, the bees would be enabled to store and *seal* it to the best advantage. The same reasons hold good to-day as they did ten years since, and I am assured no one will ever go wrong by following that advice. Reference was doubtless being made by Mr. Abbott to 'rapid feeding,' and the word in italics I believe to have been as he had it, though from that time to this I have not again referred to the paper; but the soundness of the advice given in his well-known forcible manner has constantly been verified in my own experience.

We must not forget to credit our old friend with the introduction of the regulating feeding-bottle; and though we may not all use the same article, the *principle* of slow stimulative feeding, so persistently advocated by him for the purposes of brood production, should never be lost sight of by any bee-keeper. For spring uses the plan is nothing short of perfection; and in autumn it may be carried on, as a rule, to a later date than rapid feeding; but here many of us have come to the conclusion that, added to the time and labour then taken up in slow feeding, a considerable quantity of the syrup is wasted in producing bees which, after all, are scarcely so well able to stand the rigours of winter as those worn out in producing them, and which, for all practical purposes, are as youthful as the latest born.

As a matter of fact no feeding should be carried out without a relative production of young bees, to make up for the wear and tear on the older workers in storing the same. I have shown that slow feeding in autumn carries this point to excess, the same ground being gone over several times, while if the stores were given rapidly, only the veterans of the season would be got rid of, and brood be reared in sufficient quantity to use up the greater part of the unsealed stores. Thus a proper condition for wintering is ensured, without waste, and the consumption of already stored pollen is avoided. This same pollen is too frequently consumed under stimulative feeding, and the evils of the misapplication of a good principle become apparent by a retarded development of strength in the ensuing spring.—S. Simmins.

CARNIOLANS *v.* ITALIANS FOR NORTHERN COUNTIES.

[2001.] Mr. Finlay, in 'Echoes from the Hives' of 7th February, alludes to a statement of mine that Ligurians, when crossed with blacks, do not improve the latter race in situations north of latitude 54°, with which statement a friend of his who has tried the cross entirely agrees. I have found this to be the result, with one exception, in every case that has come under my notice. In this exception the owner, who runs an apiary of over fifty stocks, was well satisfied with the results of the cross, and periodically introduces a certain number of Italian queens into his apiary to keep up the infusion of fresh blood. The situation of the apiary no doubt has something to do with so good a result, as it is very sheltered, and the neighbourhood well wooded. The Carniolan is a totally different race, whose climatic habitat is far more rigorous than ours. Such being the case, I should consider them as more suitable for a northern climate. The introduction of the Carniolan being of a much more recent date than the Italians, the former are not so extensively diffused, statistics of their working qualities in a northern latitude not being so easily obtainable as with their more exotic relations. In the south of England I have found them to be on a par with the Italian; and as they have been reared for generations past in a very rigorous climate, the natural inference may be drawn that they would well suit our northern counties and Scotland. With regard to their mild disposition, it is most marked. I, upon most occasions, never use any subjugation, removing frames and sections with the greatest ease, and yet they will protect the entrances to their hives with the utmost vigour.

We may assume that their qualities are of a high standard when such a bee-keeper as Mr. W. B. Carr, who—I hope he will forgive me for saying so—was most bigoted against the foreign races, is beginning to advocate the introduction of the Carniolans; anyway, he is very pleased with their performances up to date. We can take his opinion as being beyond that which so many choose to call 'trade-puffing.' This latter is so frequently adduced as the *raison d'être* of breeders upholding the qualities of a certain race, that I hope Mr. Editor will not object to my assuring all that I would sooner sell one English than two foreign queens. As a matter of fact, I should obtain a larger profit on the sale of one English, although the returns upon the two foreigners would be larger.—W. B. Webster.

THE WINDSOR SHOW.

[2002.] Mr. McNally has, in my opinion, struck a very weak point in our Windsor Schedule. Those who saw the eighteen samples of English wax at the Crystal Palace in August last are not likely to forget the splendid display made on that occasion. Perhaps I may be allowed to say that, individually, I urged from what I had seen at the Palace that prizes should be offered for wax as well as for honey and hives. But the Committee cannot do everything; their funds are limited. If a special fund is raised for exhibits of wax I shall be happy to give half-a-sovereign.—E. Bartrum, D.D., *Wakes Colne Rectory, Essex*

[We are not aware what were the reasons that urged the drafters of the Schedule to omit the mention of wax amongst the exhibits at the Windsor Show, yet exhibits of wax can be introduced in Class 22—'For the most interesting and instructive exhibit of any kind connected with bee-culture not mentioned in the foregoing classes.'—Ed.]

ESSEX BEE ASSOCIATION.

[2003.] In my reference to the Essex Bee Association, and the band of energetic workers who have done so much to promote 'the cause' in Essex, I am sorry to have omitted the name of Mr. Aubrey. I am assured that he has done excellent work, having acted as Secretary for five years, during which time the number of members was more than doubled. Although he is no longer Secretary, he still, I am told, makes himself most useful. As I am a comparative stranger in Essex, I trust that this omission on my part may be excused.—E. Bartrum, D.D., *Wakes Colne Rectory, Essex.*

SIMPLE METHOD OF TRANSFERRING.

[2004.] How often novices have been puzzled over the question of transferring! They are told it must be done at the right time, and that just three weeks after a first swarm has issued, so that all the brood will have hatched, and then there will be no fear of harming it. But then, what about the possibility of the combs being full of thin warm honey, and so soft that even after the (to the novice) arduous task of driving the bees out he stands a good chance of having a 'great mess' on his hands?

Now, suppose the novice of the future is told never to attempt such a job, but to let the bees transfer themselves, their brood, and their honey, to his new hive! Will he not be thankful to escape the old ordeal, and will not some of the experts only too gladly avoid what hitherto has been neither more nor less than a great waste of time?

Attempts have been made to get the bees to transfer themselves from a fixed comb hive by placing the same *above* a frame-hive, and allowing them to work downwards. But the results have not been satisfactory by any means. At the end of the season the bees will, in part, be found below on the moveable frames, while those above have to be cleared out from between heavily charged combs; and the honey! What is its value in old dark combs, with still a very sticky job on hand, before it can be rendered into saleable form?

I have practised the following plan with complete satisfaction. Place the skep or other fixed comb hive *under* the bar-frame hive, the former being inverted or otherwise as most convenient. Cut an opening for communication in a makeshift floor-board, or place the skep (inverted) in an empty body box, with another furnished with combs or foundation above it; the former by preference. If on hand, place a frame of brood in the centre of the new hive, and as fast as the brood hatches from below the bees will locate themselves above, as well as remove the whole of the honey that may have been in the original combs. The new brood-nest is always under immediate control; no time is lost; while the vacated and perfectly dry combs may be transferred at any convenient opportunity.—Saml. Simmins.

WIDE ENTRANCES, RAPID FEEDING, IMPERVIOUS QUILTS, AND DYSENTERY

[2005.] Since my former letter on these subjects I have seen reason to regret that I was not more precise in my heading as above, for had I put as, with a knowledge of the criticism I should be subjected to, I ought to have done, the word *late* before the words 'rapid feeding,' there would, from my point of view, have been nothing in my 'article' assailable. I did not suppose when in December I wrote '*rapid feeding for winter is bad*,' that the condemnation implied would be held to include rapid feeding at all times and seasons, for often, naturally, bees gather from the fields during the day more food than they can store in their brood-laden hives until far into the night succeeding; but nevertheless, with broodless hives in summer and early autumn, I do seriously condemn rapid feeding and the winter treatment of late recommended in this *Journal* as bad in every sense, and I regret to see the condition to which bees have been brought thereby.

The renowned writer of 'Useful Hints' graphically says on p. 50, under the heading 'Chilled Brood':—'After a severe frost, if only lasting a few days, the outside bees of the cluster become chilled, and falling on the floor-board, unable to regain their position, thus perish.'

This is the avowed experience of an exponent of the wide-entrance-and-impervious-quilt system for winter use; and in the next paragraph he writes as if in support of my system and in condemnation of his own:—'Bees, too, after long confinement, when attempting a feeble flight with swollen abdomen, fall and perish.' What is all this but the 'dysentery' I portended? If we go a little further back (p. 26), we shall find that 'Entrances must be carefully and frequently examined and kept clear of dead bees and other refuse' (these entrances being many inches wide and the space under the frames two inches deep), and the writer continues: 'but it will be well to raise the quilts and ascertain whether *all* (italics not mine) are dead before feeding or taking other precautions.' These 'Useful Hints,' be it remembered, arise naturally out of a system of winter management which I regret to see persevered in, and under which, although an expert may by expedients pull his bees through, an average amateur or cottager will fail, and this is in great degree admitted by the writer of 'Useful Hints' on p. 26, where he says, 'Numbers of colonies around us have already perished, not from starvation only, but from the populations being too small to keep up the necessary heat;' or, in other words, to withstand the cruelly cold system of management to which they were subjected.

The writer of 'Useful Hints' further continues, as if in support of my condemnation of rapid feeding as a rule, 'Many colonies which were large and strong in June had dwindled to half their numbers when autumn arrived, and so went into winter quarters short of bees,' and it was right here, I assert, that rapid feeding was unwise. Those who looked after their bees know that, as a rule, before June had passed breeding had ceased, or nearly so, consequent on the scarcity of honey; and it was at this particular time when moderate, continuous feeding, or, in other words, the artificially keeping up of the honey-flow, would have kept up the breeding, and the stock would not have dwindled; but instead of that, the system of rapid feeding in vogue drenched the hive, causing all the cells to be filled more or less, and thereby positively prevent the breeding essential to the well-being of the colony.

In my letter under notice (Dec. 20) I asserted that the effect of the cold system (condemned) would be the abnormal consumption of food, to be followed by breeding, distension of nurse bees, and probable dysentery, and I was sat upon by our worthy 'Ed.;' but what says 'Useful Hints,' Jan. 3 (my letter was written Dec. 8), as the result of his system—'Breeding will now commence in strong and healthy colonies. . . No stimulation nor disturbance of any kind must be allowed, except, perhaps, in the case of dysentery, the signs of which may generally be observed on soiled alighting-boards;' and then follow directions for cleansing away the filth that but for rapid feeding, wide entrances, and impervious quilts, would not have been there.

I am obliged to 'Woodleigh' for so kindly remembering me, p. 52, as a 'pioneer of the craft;' his words are as wine to the weary, and, writing under the stimulus, I boldly claim to have been a true pioneer, and to have led a mighty army of bee-keepers by the nearest ways to success. My motto has ever been, 'Hew to the line, let the chips fall where they may.' I have not an axe now to grind or to hew with, but while I am able I will do my best with my pen to defend the ways I have proved against all comers.—C. N. Abbott, *Southall, February 9th.*

[We did not understand the writer of 'Useful Hints' to assert that the loss of bees, during a severe frost, occurred *only* in hives wintered on the 'wide entrance and impervious quilt system.' We believe the more practical parts of the 'Hints' are intended for transference to the columns of the *Adviser*, and are general in their application as to systems of management, being especially intended to benefit the cottager, who invariably reduces the entrances to his imperviously propolised skeps to the one-bee-passage. Amongst this class of bee-keepers the writer of 'U. H.' has a long and varied experience, and it is only fair to allow that to preach to skeppists the doctrine of wide entrances, impervious quilts, and ample space below frames, &c., would, to say the least, be out of place.

In the absence of any statement that the writer is describing results arising from his own system of wintering, it is hardly fair to jump to this conclusion. No doubt many colonies, wintered on *any* system, with a too short supply of wholesome food, and a sparseness of population unequal to keeping up the temperature of

the hive, have already perished. But we have accepted no brief for the writer of the 'Hints,' believing him to be fully capable of defending himself.—Ed.]

A REAL ORIGINAL.

A BRIEF SKETCH OF HER DOINGS AMONGST BEES.

(*Concluded from page* 68.)

[2006.] On visiting the garden next day, and finding no swarms, I advised supering all strong stocks that had not swarmed.

'No, that won't do,' says my friend. 'What's the good of putting supers on if there's no honey coming in?'

'Well, Mrs. W., your stocks are very strong with bees, and with every probability of a honey-flow, all would be ready, and you would in a measure prevent more swarming.'

'That's just what I don't want to do. I want some swarms. I have not many yet, and the honey-flow you talk about don't seem likely to come to be of much good. I've always plenty of honey by this other years.'

'What kind of supers do you use, Mrs. W?'

'A many kind, sir. See here' (pointing to various articles, including a peck measure); 'but I like them little straw supers well as any. Them glasses look nice, and I can sell them, only they don't want to be big. I've seen some nice little boxes in the shops, and I think them would sell well.'

'You should get some of them, Mrs. W., and I will fit them up for you.'

Having agreed to this, the section and foundation were soon procured, all fitted up ready, and, with a good deal of persuasion, placed on some of the strongest stocks, and well secured. With a significant smile, and 'I shall see what they do in 'um,' finished that performance.

On making my way to look how bees were working, and having to pass in front of hives, I was suddenly pulled up, my friend remarking, she did not like people walking in front of the hives when bees were busy and about swarming; and another thing, if the queen was about to come out, she might turn in again; besides, 'your bacca-smoke they're not used to.'

I tried to excuse myself, and fence a bit, saying my presence or my 'bacca-smoke' would not deter the bees coming out if they meant it, when I was quickly reminded of the fact that I had stated, when driving the stock a short time back, that smoke alarmed the bees, and made them quit their holdings. With a chuckle of triumph and a sharp rebuke I was made to understand my friend had a keen memory; being a bit of a bacca-smoker, and just really enjoying a whiff, I was deservedly punished, and made for a time a compulsory abstainer, whilst, in my confusion, I hurried my lighted pipe into my pocket, too close, as I soon found, to my kerchief; but anxious to spare myself further discomfiture, made no more of the mishap.

Turning to a more pleasant topic, I asked what flowers or forage was thought best for bees, and from which most honey was gathered.

The reply was, 'Plenty of fruit bloom, and all sorts of early flowers. Bees do best if they can get plenty of pollen and sweet early in the season. They swarm earlier, and are ready when the beans and clover come; and we have plenty of it, as you see, all about here. Some folks make a lot of talk about May-flower, but I don't think much to it, I don't notice bees do much at it: but then you know, sir, I don't take a deal of notice, long as the bees get plenty of good honey, and they have always done that; but I don't think they will this year, if the weather don't change for the better.'

'Are you troubled much with wasps, Mrs. W.?'

'Yes, at times, later on; but I always look about in the spring and kill all them big 'uns I can. I often find them under the bags and coverings on the hives.'

'Do you read any books about bees, Mrs. W.?'

'No, not often. Our parson let me have one once. I read some of it, but I didn't learn much out of it, it was too much for me to understand, and it was all about your new-fashioned hives. I have learnt what I know without any book; but then, you see, I don't know much.'

Having a spare number of *Cottage Bee-keeper* in my pocket, I took the opportunity of introducing it, and strongly advised my friend to invest in it for a year. This she did, after well weighing over the cost and the probable benefit it might be to her.

As opportunities offered, I continued to visit my friend and her bees during the season now passed, and many a doleful talk over the events was indulged in.

'Few swarms, no honey, bees will starve if not fed. What will customers do for honey? always trusted to me; will go somewhere else now; shan't get their custom another year. No money to take for honey or wax: hundredweights of sugar to buy; all the trouble to make sugar-cake; all the trouble to feed; the chance of many dying afterwards; the risk of catching my death of cold looking after 'um. But it's no good, they must be looked after if I mean to keep 'um alive, and I shall be worse off still if I let 'um die for want of looking after, that's a dead certain, and then where should I be next year, if I live, with half my bees dead? It wouldn't pay that how. I must try my best. There's no chance for 'um now to get what they want for the winter, so I must feed 'um. I feel half inclined to be shut of a lot of the stocks. Will you buy some if I make up my mind to sell? I might offer 'um cheap. What do you think they ought to be worth?'

To these and many other such-like cheerless utterances I was doomed to listen, whilst I offered such words of comfort as I was able to bring to mind that might be both instructive and encouraging. On one point we were quite agreed, viz., that the season was one of the worst, if not the very worst, that has happened in our time, and joined in the hope we might not again witness the like. It has been truly a great hardship for one placed as is this old lady, with all the care of this large lot of bees, and to suffer such loss. At the same time it is most praiseworthy the manner in which she battled with her difficulties, and her determination to overcome all if possible.

My latter visits were to see what bees might be obtainable and saved from destruction, as also to learn how stocks stood for winter. Having on a previous visit well discussed and practically shown the method of feeding with *syrup*, which was rather new to her (sugar-cake having been the usual food hitherto), I was pleased to find my suggestions on feeding with syrup had been well carried out; and further, that since stopping feeding with syrup, a bountiful supply of sugar-cake was on the go, and ample protection to the hives, leaves all, I hope, in a fair way for standing the winter.

Snowy weather is much dreaded by Mrs. W. When asked why so, the reply was, 'I years ago used to notice thousands of bees dead on the snow, when it lay, and the sun got out, and I tried a plan as answered well, and I always practise it snowy weather, and that is, to shut the bees in; don't give 'um a chance to get out, it's sure death if they do. Ain't you never found that out?'

'Well, yes, Mrs. W., I have witnessed great harm during the time snow is on the ground, and the weather chance be bright; but my plan has been to well shade the entrance, not to close it entirely. I should fear some danger of the bees being suffocated.'

'You needn't fear nothing of the sort, sir. I never lost any by it. I fasten the hole close up as long as the snow lasts; and it was a job once last winter, with the snow ever so deep. I had to get a man to shovel it away, so as I could get round to the hives.'

'You must indeed have had a heavy job, Mrs. W.'

'Well, it warn't a light job, sir; but look at the thousands of bees I should have lost if I hadn't of shut 'um in. Don't you never fear shutting your bees up, sir, when snow is on the ground, they won't be suffocated none; and I never give much of entrance any time, as you see; bees want to be warm and dry, and no wind blowing in the hive; that's always been my opinion, and I shan't change it. You may like that plan of big entrances if you like, sir.'

'Don't mistake me, Mrs. W. I do not advocate such open entrances myself; I was speaking of the principle which some of our great bee-keepers advise.'

'Ah, well, you tell 'um then they make a mistake, in my opinion.'

I must not trespass further upon your kindness, for your columns are always well filled up; but should the foregoing be found in any way interesting to the readers of the *Journal*, I am glad to have noted the little sketch. There may be points recorded which, to some of our friends who are juniors in the craft, will possibly appear novel. However, to one of the senior in such (and who cares not to reckon back), his visits and observations have not been without interest and profit, for during my whole experience it has not been my good fortune to see so large an apiary so well managed with such real earnestness displayed in all that concerned the welfare of the bees, the murdering business excepted, as this unique garden by its real original owner. Sensible of my great obligations to my friend for all her kindness and courtesy, I expressed my thanks for the pleasure it had given me, and the opportunity it had afforded me, of learning so much, which brought the usual smile and reply, 'You're quite welcome, sir, to all you've learnt from me.' Long may the old worthy live to enjoy her bees. I wish her better luck another year,—a wish most bee-keepers may well echo.—R. R. Godfrey.

Echoes from the Hives.

Redhill, February 12th.—Last spring, desirous of keeping bees, I ordered a swarm from a neighbour in a bar-frame hive, which did not arrive till June 11th. I fed them till they had built out about nine combs, and continued feeding all through the summer, and gave them twenty-four pounds of syrup for winter supply, and by the end of the season they had cost me altogether 2*l.* 15*s.* 10½*d.*, and not a bit of profit; and now I have bought another hive, &c., for 19*s.* 6*d.* in case of getting a swarm, so up to the present it looks like a losing concern, so shall hope for a good year to come, but I am determined not to give up, even if I lose this season. I made a feeder myself after the bottle and stage plan, and have always used the carbolic cloth, instead of a smoker, and find it answer very well, only getting one sting during the summer. I do not like to try and make a hive, as I think that requires better work than I could give it, not being a first-rate carpenter, which I think is necessary. The country round here is suitable for bees as far as I can judge, though not many people keep bees. I live half way between Redhill and Reigate, and am near enough to Redhill Common to get what heather there is in the autumn. At Reigate there is a splendid stretch of heather, but that is about two miles off; there is never much clover cultivated near, unfortunately. We have just had a good fall of snow, and although I shaded the entrance with a piece of galvanised tin and some sacking, about two dozen bees managed to find their way out, and of course perished on the snow; but up till Sunday the weather has been very mild, and they were out frequently. I have taken the *Adviser* from its commencement, and find its hints, &c. very useful. Hoping you will excuse the length of this letter, I remain, yours truly, George Barthorp.

Warbleton, Sussex, Feb. 18th.—Yesterday week, 10th inst., we had a very heavy fall of snow, which was followed up during the past week with sharp frost (the thermometer sometimes indicating 10 and 12 degrees of frost), alternated with thaws, rain, and wind storms. Yesterday, 17th, was a pleasant change—a bright, clear day, with our thermometer almost on 'Temperate' in the shade. We noticed the bees were thoroughly enjoying the treat, availing themselves of such sweets as Nature has provided (which are yet scanty). The *Laurustinus* proved to be one of these, being almost covered with busy workers, many of which were heavily laden with white pellets of pollen, the hum almost resembling a good field of white clover on a hot summer's day, or a horse-chestnut tree in full bloom. Our bees, which all appeared healthy and bright (ten stocks), are housed in good hives, some close to the ground without legs, some well up on legs, some with porous covering over frames, some with non-porous; but yesterday's outing presented no marked difference in strength or otherwise. We have not as yet looked inside since the autumn *feed-up*, nor do we intend to do so until spring is well advanced; we do not believe in it.—H. Neve.

NOTICES TO CORRESPONDENTS & INQUIRERS.

W. E. Morton.—*Sugar Cake.*—The sample of sugar will not be found suitable for your bees. It is much too hard. We do not see that Lyle's granulated sugar should not make sugar-cake such as may be used. We are rather inclined to consider that there has been some deviation from the recipe in our *Guide-book*. Please refer to our editorial of last week (p. 73), in which we have described our mode of making sugar-cake.

On the Move.—*Moving Hives.*—It would be preferable to move the bees in the hives in which they are. If the advice given in the last edition of the *Guide-book* as to fixing securely the frames (p. 113-6) be followed, and precautions are taken as to ventilation, there will be little danger to the hives being conveyed by rail together with your other goods. There would of course be some amount of risk, but we are of opinion it would be better that this should be incurred than selling your bees as they at present stand.

W. B.—*Death of Queen.*—We think your suggestion as to the death of the queen is the correct one. Weak, starving colonies, or hunger swarms, frequently vacate their own hives, and unite themselves to other stocks. The queen of this colony is refused admission, and is cast upon the ground. This may have been the case with your queen. It would be desirable to watch your stocks, and see whether they are queenless or not.

C. B. K. and W.—*Professor McLain's Recipe.*—Your letters, as requested, have been sent to Mr. Blow. His reply is as follows:—The correct recipe for the McLain foul-brood remedy is, 3 pints soft water, 1 pint salt, raise temperature to 90°, stir till salt is dissolved, add 1 pint of boiling water in which 4 tablespoonfuls of bicarbonate of soda have been dissolved, add enough sugar or honey to make it quite sweet, but not to thicken it. Dissolve ¼ oz. salicylic acid in 1 oz. alcohol, and add this to the above mixture. Combs to be sprayed with this remedy. Add 1 oz. of this remedy to each pint of syrup used. Do not feed in such quantity that the bees store it, but only as much as they can consume. Do not know where bone-ash can be bought. It is easily made. Professor McLain does not use any special feeder to my knowledge, but any ordinary one. The food is a liquid, as per other question.—T. B. B.

T. T. M.—*Carniolan Bees.*—Please read Mr. Webster's letter on Carniolan bees in the north of England on p. 91.

Jas. Truscott.—Mr. Webster's address is to be found in his advertisement which appears weekly in the *Journal*.

A Wandener.—*Utilising Combs.*—You can keep the frames of combs in a warm place to prevent granulation, and use them for feeding in the spring.

W. H. Ley.—*Simmins' Method of Contracting Brood Nest.*—We would advise you not to change to fresh hives without due consideration. Simmins' plan can be carried out by using two instead of three combs on each side of the reduced brood-nest, and so accommodate your nine-framed hive, though a hive of eleven frames as used by him is better for the purpose. A second body is necessary only if you desire to prevent swarming by placing the same *under* the stock hive. Such lower hive being arranged with quarter-inch starters only, at the time the brood-nest is reduced and supers put on, so that with honey coming in, and the sections partly or wholly fitted with incomplete combs of the previous year, or foundation already worked out, there will be no difficulty in getting the bees to work in them, particularly if covered up warm as they should be. In the absence of comb for the sections, *full sheets* of foundation are almost as great an inducement in getting the bees to start above.

St. V.—*Uniting.*—1. Move the frame-hive close to the skep, or *vice versâ*, and unite them about the end of April or beginning of May, weather permitting. Utilise the combs that have worker brood in them, and keep the youngest queen.—2. *Lincolnshire Association.*—There is no association in Lincolnshire in affiliation with the British Bee-keepers' Association. One was recently formed, but we do not know whether it is progressing.

G. Barthorp.—*Artificial Swarming.*—When the hive is full to overflowing on ten frames will be your best time to make an artificial swarm, but not before end of May.

J. Blackburn.—*Painting Inside of Hive Cover.*—This can be done with safety if you have ventilators at each end of roof under the eaves; they will allow of the escape of damp air.

W. D. Marlow.—*Consanguinity.*—The evil effects arising from this are admitted by all scientists and breeders of stock, and is self-evident to any close observer of nature. The effect of a Ligurian drone mating with a black queen would be observed in the drone progeny from a queen bred from the queen so mated. Your objection to the theory (!) that drones can be produced by unfertilised queens cannot possibly be supported. It is as well known as darkness is not light.

S. G. Field.—1. *Wide Entrances.*—We do not understand your reference to the article on ventilation, of which there have appeared several of late. Advanced bee-keepers recommend wide entrances when impervious quilts are used. From 6 inches to the whole width of the hive, and $\frac{3}{8}$ inch deep, are the dimensions advised. There is no danger of freezing. The object is to provide bottom ventilation. If there is any danger from mice, perforated zinc slides are used, but mice rarely attack frame-hives. Straw skeps are their favourite resort. 2. *Gloves.*—Persevere, and you will soon prefer to work without gloves. Avoid quick motions of the hands. After a very short experience stings on the hands are productive of little or no pain. The use of the carbolised cloth, or smoker, will drive down all the bees when the quilt is removed.—3. *Flowers.*—Your bees will work on the flowers in your garden, in suitable weather, if you treat them to crocuses, snowdrops, wallflowers, alyssum, and others so well known that it is needless to enumerate them.—4. *Queens, &c.*—Unfertilised queens will deposit eggs in worker-cells. A fertile queen in a normal condition will not.—5. *Queen laying.*—Yes, queens are now laying in populous hives. It is too soon to give artificial pollen.—6. *Moving Bees.*—Bees may be removed the distance you name without danger of loss, but do it at once, and at night.

Business Directory.

HIVES AND OTHER APPLIANCES.

Abbott Bros., Southall, and Merchants' Quay, Dublin
Appleton, H. M., 256A Hotwell Road, Bristol.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Burtt, E. J., Stroud Road, Gloucester.
Edey & Son, St. Neots.
Godman, A., St. Albans.
Howard, J. H., Holme, Peterborough.
Hutchings, A. F., St. Mary Cray, Kent.
Meadham, M., Huntington, Hereford.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.
Walton, E. C., 82 Emmanuel Street, Preston.
Webster, W. B., Binfield, Berks.
Woodley & Flood, 26 Donnington Road, Reading.
Wren & Son, 139 High Street, Lowestoft.

HONEY MERCHANTS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baldwin, S. J., Bromley, Kent.
Edey & Sons, St. Neots.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

FOREIGN BEES AND QUEENS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Benton, F., Laibach, Carniola, Austria.

A. GODMAN, St. Stephen's, St. Albans,

MANUFACTURER OF

COMB-FOUNDATION MILLS.

ANY PATTERN TO ORDER.

THREE SILVER MEDALS FROM THE BRITISH BEE-KEEPERS' ASSOCIATION.

Saw Benches, Saw Cutter-heads, Honey and Wax Extractors, Smokers, Feeder-plates and Caps, Excluders, Stampings of all kinds, and Makers of Metal Goods of all kinds to the trade and retail.

USE GODMAN'S TWO-DISTANCE METAL ENDS.

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INVENTIONS WORKED. SEND FOR PRICE LIST, FREE. (210)

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

WINDSOR MEETING, 1889.

PRIZE LIST FOR HIVES, HONEY, &c.

To be obtained of J. HUCKLE, Sec. of the B. B. K. A., Kings Langley, Herts.

Exhibits in Classes 1, 3, 4, 5, 6, 7, 8, 9, 10, 11 (sections excepted), must be manufactured by the Exhibitor. Exhibits in Class 1 and in Class 19 to be staged and repacked by the Exhibitor.

CLASS 1.—For the best collection of Hives and Appliances, to consist of the following articles:—One Frame-hive, priced at 15*s.*; one ditto, priced at 10*s.* (*Note.*—These Hives must be fitted with arrangements for Storifying.) One Observatory Hive; one Hive of Straw or other material, not entirely of wood, for obtaining either Comb or Extracted Honey; one pair of Section Crates fitted with Sections; one Extractor, one slow stimulating Feeder, one rapid Feeder; one Smoker or other Instrument for quieting Bees; one Veil, one Swarm Box for travelling, capable of being used as a Nucleus Hive; one Travelling Crate for Comb Honey; five other distinct articles not specified at the discretion of the Exhibitor. Each article to be priced separately. No articles must be added to the collection, nor any portion of the Exhibit removed during the Show. First Prize, 40*s.*; second Prize, 30*s.*

CLASS 2.—For the best Observatory Hive stocked with Foreign Bees and Queen. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 3.—For the best and most complete Frame-hive for general use, unpainted. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 4.—For the best and most complete Frame-hive for general use. The Hive shall consist of (1) a Floor-board on four short legs; two Chambers or Body-boxes, equal in size, similar and interchangeable, both to have porches, with entrances not less than 12 in. wide, that can be contracted at pleasure, each chamber to be capable of holding at least ten Standard Frames, but only one set of Frames with strips of foundation fixed and two division-boards to be supplied. (2) One Case of 4¼ by 4¼ Sections, with foundation fixed and separators, of such size as to admit of its being placed inside the chamber. (3) A substantial Roof, sufficiently deep to cover a case of sections and afford ample protection to the whole Hive, the price of each part, namely, stand and floor-board, body-box, case of sections, and roof, to be given separately, the whole not to exceed 15*s.*, unpainted. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 5.—For the best and most complete Frame Hive for general uses. The Hive shall consist of (1) one Chamber or body-box, containing ten Standard Frames having strips of foundation fixed, two division boards, entrance porch, and floor-board, the chamber capable of being used with a second of the same pattern. (2) One Case of twenty-one Sections, 4¼ by 4¼, with foundation fixed and separators. (3) A Roof sufficiently deep to cover one case of sections at least, the price of each part, namely, floor-board, body-box, case of sections, and roof to be given separately, the whole not to exceed 10*s.* 6*d.*, unpainted. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 6.—For the best Honey Extractor, price to be taken into consideration. First Prize, 15*s.*; second Prize, 10*s.*

CLASS 7.—For the best Honey Extractor, price not to exceed 12*s.* 6*d.* First Prize, 15*s.*; second Prize, 10*s.*

CLASS 8.—For the best pair of Section Racks, completely fitted for use and interchangeable, price not to exceed 3*s.* 6*d.* each. First Prize, 15*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 9.—For the best Feeder for slow stimulating feeding. First Prize, 10*s.*; second Prize, 5*s.*

CLASS 10.—For the best Feeder for quick autumn feeding, capable of holding at least 5 lbs. of food at a time. First Prize, 10*s.*; second Prize, 5*s.*

CLASS 11.—For the best Smoker. First prize, 10*s.* second Prize, 5*s.*

CLASS 12.—For Useful Inventions introduced since 1887. Special Prizes according to merit.

CLASS 13.—For the best 12 Sections of Comb Honey, the gross weight to approximate 24 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 14.—For the best 12 Sections of Comb Honey, the gross weight to approximate 12 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 15.—For the best 6 Sections of Comb Honey, the gross weight to approximate 6 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 16.—For the best Exhibit of Run or Extracted Honey in jars, not exceeding 2 lbs. each, the gross weight to approximate 24 lbs. First Prize, 30*s.*; second Prize, 20*s.*; third Prize, 10*s.*; fourth Prize, 5*s.*

CLASS 17.—For the best Exhibit of Heather Honey (Comb or Extracted), the gross weight to approximate 12 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 18.—For the best Exhibit of Granulated Honey in jars, not exceeding 2 lbs. each, the gross weight to approximate 12 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 19.—For the best Exhibit of Comb and Extracted Honey, in any form, staged on space 4 ft. by 4 ft., height not to exceed 5 ft. above the table. The gross weight of each kind to be stated. First Prize, 60*s.*; second Prize, 40*s.*; third Prize, 20*s.*

The Exhibits in this class to be staged by the Exhibitor.

[A Silver Medal, independently of Money Prizes, will be given for the Exhibit most tastefully arranged.]

CLASS 20.—For the best plan and design for an Apiary of 50 Hives on two or more acres of land, to include a suitable building for extracting and general work. The design to show arrangements for growing Honey- and Pollen-producing plants, attention being given to the value of the crops for other purposes. First Prize, 40*s.* and Silver Medal; second Prize, 20*s.* and Bronze Medal.

CLASS 21.—For the best Diagrams suitable for a Lecture on Bee-keeping, or Technical Lessons in Rural Schools. First Prize, 40*s.* and Silver Medal; second Prize, 20*s.* and Bronze Medal.

CLASS 22.—For the most interesting and instructive Exhibit of any kind connected with Bee-culture not mentioned in the foregoing Classes. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

The Council reserve to themselves the right to publish for Educational purposes any Exhibit entered in Class 20 and 21.

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THE
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Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.'

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Editorial, Notices, &c.

BRITISH BEE-KEEPERS' ASSOCIATION.

The Annual General Meeting was held on Thursday, February 21st, 1889, at 3.30 p.m., in the offices of the Royal Society for the Prevention of Cruelty to Animals, 105 Jermyn Street, St. James's, when the Board Room was densely crowded by a large audience, amongst whom were:—The Baroness Burdett-Coutts, President (in the Chair), Mr. T. W. Cowan (Chairman of the Committee), the Hon. and Rev. Henry Bligh, Captain Bush, R.N., Captain Campbell, the Rev. G. Raynor, the Rev. Dr. Bartrum, the Rev. J. L. Seager, the Rev. W. E. Burkitt, the Rev. F. T. Scott, the Rev. R. Errington, the Rev. R. Wilson; Messrs. Hooker, Blow, Sambels, Grimshaw, Baldwin, McClure, Graham, Meggy, Andrews, Jonas, Glennie, Lee, Hasluck, Lyon, Eastty, Neighbour, Henderson, Webster; Mrs. Arbuthnot, Mrs. Fielder, Miss Eyton, and Miss Todd.

The President opened the proceedings by calling on the Secretary to read the minutes, which having been done, they were confirmed.

Mr. Cowan said that in accordance with a generally expressed wish, invitations to attend that Meeting had been sent to the Presidents of County Associations who were Vice-Presidents of the B.B.K.A., with the result that three letters had been received in reply, the writers, Lord Leigh, Lord Jersey, and Mr. Stuart Rendel, M.P., expressing regret at their inability to be present.

The President moved:—'That the Report and balance-sheet issued for the year 1888 be received and adopted, with a vote of thanks to Mr. Kirchner, the auditor.' This resolution was seconded by the Rev. W. E. Burkitt, and carried unanimously.

Mr. McClure proposed and Mr. Grimshaw seconded a vote of thanks to the retiring Officers and Committee of the Association for the year 1888, which motion was carried unanimously.

Mr. Cowan, in moving a 'vote of thanks to the Council of the R.S.P.C.A. for the gratuitous use of their Board Room for Committee and other meetings,' said all present knew the obligation the Committee were under to the R.S.P.C.A., and it was unnecessary to plead for the adoption of the resolution. The Association had always subscribed to the funds of the Society, and that was the least acknowledgment that could be made by them.

The Rev. G. Raynor seconded the resolution, which was unanimously passed.

The President, as representing the Society, acknowledged the compliment, and said it always afforded the Committee of the R.S.P.C.A. great pleasure to assist the Association.

The Rev. Dr. Bartrum, in felicitous terms, proposed the re-election of the President, Vice-Presidents, Treasurer, Auditor, Analyst, Librarian, and Secretary for the year 1889. He humorously described the Baroness as the good queen-bee who never grew old, and therefore never required to be replaced in the hive which she so ably governed.

The Rev. R. Errington seconded the motion, and said that it was hardly necessary to remind his hearers that the Baroness was connected with every good movement in the country, and the fact of her having accepted the Presidency was in itself a sufficient guarantee that the Association was doing a great work.

The resolution was carried unanimously.

Mr. Cowan pointed out that as items 6, 7, and a part 15 on the Agenda referred to Rule 4, it would be desirable to discuss them together, although each portion could be voted separately. This suggestion was agreed to.

Mr. W. P. Meadows moved that at the close of Rule 4 the following words be added: 'Provided that they are not manufacturers or dealers in bee-keepers' appliances.' He thought it extremely desirable to amend the rule as proposed, because if a single bee-appliance manufacturer were to obtain a seat on the Committee there would be a great deal of jealousy in consequence. If the trade were to be represented, it must be done so fairly. He considered that manufacturers ought not to take part in anything connected with the working of the Association, and ought not even to judge at shows.

Captain Bush, R.N., seconded the motion, which he thought a very proper one.

Mr. Blow felt strongly opposed thereto, and considered that the motion, if adopted, would cast a slur on the reputation of bee-appliance manufacturers. While having no desire to enter the Committee, he thought that a manufacturer, who was generally a practical business man, would be a good addition to its ranks. As to a manufacturer judging at shows, that was quite out of the question. The B.B.K.A. would never think of appointing such person as judge, nor would a manufacturer desire the office.

Mr. Baldwin supported the motion, being of opinion that the Committee ought to consist of gentlemen perfectly independent of any trade interests.

Mr. Sambels agreed with the spirit of the motion, but objected to the addition of the words suggested to Rule 4. He considered they would be interpreted as a slight on manufacturers, and were unnecessary, because the members of the B.B.K.A. were never likely to elect a manufacturer on the Committee.

Captain Bush moved to add the following words at the end of Rule 4: 'The Committee shall have the

power to decline the donation or subscription of any person.' He made that proposition in view of a difficulty in which the Committee were placed a short time ago, when it was felt they had no power to decline a conditional subscription. It was very necessary to have a safeguard of the kind suggested.

Mr. McClure seconded the resolution, considering the precaution a proper one for the Association to take in its own interest.

In answer to Mr. Eastty, who asked for an explanation of the necessity of such a rule, Mr. Sambels said he presumed it was designed to prevent the admission of undesirable persons into the Association. At present the Committee had no power to reject the subscription of any one. He thought the Council, in whom they had every confidence, should be entrusted with the privilege in question.

Mr. Baldwin moved that in Rule 4, line 3, after the word 'vote' all the words up to and including 'year' in line 7, should be struck out; also that the words in line 7, 'Life Members alone' should be struck out. He explained at great length his reasons for this motion, and disclaimed all idea of offending the susceptibilities of any one. The present system caused a great deal of suppressed dissatisfaction. He asked that the members of the B.B.K.A. should be put on an equality with the members of County Associations, which (at least the majority of them) had taken care not to copy the rules of the parent institution. Those counties that had adopted the objectionable plan were conspicuous failures. He then compared the list of subscribers according to the last report with those of the year 1885, and ascribed the diminution of numbers to discontent caused by this rule. In conclusion he predicted that the adoption of his resolution would be the means of restoring some of the former prosperity.

Mr. Blow seconded the motion, saying that he had often heard complaints of the difficulty of persuading members to serve on the committee. While the present restrictions existed that was not to be wondered at. The resolution before them would obviate that difficulty to a large extent. He strongly advocated the system of one man, one vote, which was now becoming universal.

Mr. Meggy supported the one-vote principle, and also Mr. Meadows' proposed addition to Rule 4.

Mr. Blow moved as an amendment that Mr. Meadows' resolution be considered that day one year.

Mr. Baldwin thought that Mr. Meadows proposal should be adopted because the example of the B.B.K.A. would be followed by County Associations, and the vexed question would then be settled once and for all.

Mr. Meadows said that so long as the question remained an open one there would always be jealousy and uneasiness on the part of manufacturers.

Mr. Cowan pointed out that at the time when the life members were asked to contribute their donations the Association was in low water, and one inducement held out was that a life donation would secure four votes. It was, therefore, clear that that contract could not be disturbed without the consent of the life members themselves, consequently any resolution passed on that subject must be prospective. But, as a matter of fact, the grievance only existed in name, for on the last occasion of voting only 17 out of 44 life members exercised their powers, as against 135 other members. Moreover, out of that seventeen, five were members of the Committee, thus the number was actually reduced to twelve. He did not see why it should be presumed that the life members, and those who subscribed more than 5*s*., were going to enter into a combination to outvote the 5*s*. members. The fact that the members of the Committee were elected by a large number of five-shilling members was a proof that the Committee was a representative one. He admitted there was a difficulty in obtaining gentlemen to serve in its ranks. That was not surprising considering the time and expenditure of money in travelling expenses which the holding of such office involved. Allusion had been made to the falling off of members. That was a result which had been foreseen. It had always been said that the members of the B.B.K.A. would decline *pro rata* with the formation of County Associations. It could hardly be expected that subscribers would pay money to the central as well as the County Associations. He believed the reduction of votes would mean the general reduction of subscriptions to 5*s*. The institution was sadly in need of funds, and, in his opinion, the proposed step was a very unwise one. As to giving the life members a seat *ex officio* on the Committee, the project was not worth entertaining. He believed in small committees as being the most effective. The plan suggested would add forty-four members to an already unwieldy committee, and would be the means of obstructing rather than assisting business. Although Mr. Meadows' motion had always been carried out, in effect, he saw no objection to the embodiment of it in one of the rules.

Mr. Jonas, as a member of the Finance Committee, opposed the adoption of Mr. Baldwin's motion, as likely to cause a diminution of the Association's funds. He, however, was in favour of future life members receiving only one vote.

Mr. Baldwin said that after hearing Mr. Cowan's explanation it was clear that the existing life members' privileges could not be curtailed. He, however, did not anticipate any loss of funds by the adoption of his motion. He thought at the present time many persons were deterred from subscribing more than five shillings, because they feared a higher subscription would indicate that they were aspiring to serve on the Committee. He believed many would increase their subscriptions if the rules were less partial in their application.

Dr. Bartrum opposed Mr. Baldwin's views, and supported the arguments of his colleagues on the Committee, Mr. Cowan and Mr. Jonas.

Mr. Hasluck thought that the fact of the last two or three seasons having been very unfruitful in the production of honey, and consequently bee-keeping rendered unprofitable, might account to some extent for the diminution of members.

Mr. Jonas pointed out that the aggregate of voting power possessed by the five-shilling members was double that of the ten shilling and guinea members, as shown by the last report.

Mr. Blow's amendment having no seconder could not be put to the meeting; but a division was taken on Mr. Meadows' resolution, the latter being adopted by a majority of twenty to one.

Captain Bush's motion was then carried unanimously.

Mr. Graham proposed an amendment to Mr. Baldwin's resolutions, which if adopted would render all the five-shilling members eligible to serve on the Committee.

Mr. Webster seconded the amendment; upon which the resolution proposed and seconded by Messrs. Baldwin and Blow was by consent withdrawn, and the amendment submitted to the vote, and carried unanimously. Thus, Rule 4 (without the additions proposed by Messrs. Meadows and Bush, and accepted by the meeting) now runs thus:—'Annual subscribers of five shillings and upwards shall be members of the Association. Donors of five pounds and upwards shall be life members. Members shall be entitled to one vote for every five shillings subscribed. Life members shall be entitled to four votes for every donation of five pounds. All subscribers and donors of prizes of the value of one pound during the preceding year, and life members, shall be eligible for election as members of the Committee.'

The Hon. and Rev. Henry Bligh moved:—

'That after the word "of," line 2, Rule 7, the word "fifteen" be struck out, and the words "twelve members to be elected by the members of the British Bee-keepers'

Association, and three members to be elected by the affiliated Associations be added."'

'Also in Rule 8, line 1, after the word "annually," the words "with respect to the first twelve seats, be added." Also that the following words be added at the close of Rule 8, "With respect to the remaining three seats, each candidate must be proposed by two members of the Committee of an affiliated Association, at a properly constituted Committee Meeting. The nomination paper must bear the signatures of the persons so nominating, and the signature of the nominee, and be countersigned by the Secretary. The election shall be conducted in the same way as that of the first twelve, except that the voting paper shall be sent to the Secretary of each affiliated Association for his signature and that of two other members of the Committee, as the vote of the majority of a properly constituted meeting of the Committee of that Association."'

He stated at length the objections most of the Committee felt to the amendment of which Mr. McClure had given notice. The matter had been carefully considered by the Committee, who were alive to the fact that at all events the distant counties were not well represented on their Board. They had used every means in their power to induce members living at a distance to enter the ranks of the Committee, but without success. The obstacles to such end were insurmountable, viz., time and expense. To admit the County Representatives as Committee men would mean the creation of a body which would have the power of over-riding the vote of the elected working Committee. That was obviously so, as there were thirty-two counties in affiliation with the B. B. K. A., and only fifteen members of the Parent Committee. Besides, every member of the Committee ought to feel a responsibility for the proceedings of the Association, and be prepared to defend them, which the County Representative members, who attended meetings intermittently, could not do. Moreover, if the amendment were carried it might be possible for a few County members, on some casual occasion, to appear and defeat proposals which had occupied months of deliberation by the ordinary Committee.

Mr. Jonas seconded the motion.

Mr. McClure moved as an amendment:—'Representatives of Affiliated Associations (approved by the Central Society), being members of the British Bee-keepers' Association, are *ex officio* members of the Committee.' The experiment had been tried in the counties of admitting district Representatives as *ex officio* members of the County Committee, and had been found to answer very well—at least, that was the case in Lancashire and Cheshire. He had more confidence in the County men than to believe they would desire to over-ride the acting Committee, or do anything detrimental to the interests of the Association. Besides, these gentlemen would be responsible to their own counties. Mr. Bligh had somewhat misapprehended his (the speaker's) amendment, which only proposed to admit to the Committee County Representatives who were members of the B. B. K. A.; thus, the number instead of being thirty-two would be far less. He did not believe Mr. Bligh's alternative proposal would be practicable.

Dr. Bartrum said as the number of County Associations was on the increase, and it was also proposed to affiliate district Associations, one could not foresee to what extent the Committee's numbers might be augmented in a year or two if the amendment were adopted.

The Rev. J. L. Seager seconded the amendment.

Miss Eyton moved to amend the amendment by the substitution of the word 'Counties' for 'affiliated Associations.'

The discussion was continued by Messrs. Andrews, Grimshaw, Webster, Cooper, Meadows, and Meggy, who supported the amendment, contending that as a matter of practice the inclusion of County Representatives, whilst giving general satisfaction, would add very few members to the Committee.

The amendment was opposed by Captain Campbell, the Rev. Mr. Errington, and Mr. Cowan, the latter of whom explained that Mr. McClure's proposal was already in force, the rules providing that the Vice Presidents of County Associations be *ex officio* members of the Central Committee.

Mr. McClure said that such provision had no force whatever, the generality of Vice-Presidents being mere 'figure-heads.' Besides, it was well known that the Vice-Presidents were never summoned to the Committee meetings.

Upon a division being called for, the amendment was carried by eleven votes to ten, consequently Mr. Bligh's resolution was lost.

The President (who was obliged to retire at this stage of the proceedings owing to an engagement) said that the previous evening she had attended a meeting at the Mansion House. It was a dinner, at which were present leading men of the great City Companies. The bountiful charity of these bodies was a matter of common remark, and amongst other acts of benevolence it had been stated that the Mercers' Company was about to set aside a large sum of money for the purpose of founding an Agricultural College. Such an institution was very necessary in the present days of agricultural depression, when nothing but the highest scientific knowledge could insure success to farming operations. It had occurred to her that in the event of the project referred to being carried out something might be done in relation to the College by way of advancing the bee-keeping interest, and she would be very glad at the proper time to help them in pressing that subject on the attention of the Mercers' Company. It had also struck her that something might be done by the B. B. K. A., through their members who reside in the provinces, towards the establishment of honey markets in country towns. There was such a market at Grantham, for instance, and if that example could be followed in other towns of the kingdom the cause would make great headway. At the present time the difficulty was to find an outlet for the disposal of honey. Another point she wished to refer to concerned the cultivation of bees in the unions of country towns; most of these had large gardens, and the proposal seemed very feasible. The bees would no doubt be a source of profit, and at least might teach a lesson to the inmates. She commended these subjects to the consideration of the members, and sincerely trusted that their labours that day would be conducive to the best interests of the Association.

Mr. Cowan moved a vote of thanks to the President, which was carried by acclamation, and the Baroness retired amid general applause.

Mr. Cowan, who took the chair, moved amendments to conditions 1 and 4 of the Conditions and Privileges of Affiliation, in accordance with the recommendation of the Committee, who had thoroughly considered the question.

Mr. McClure moved as an amendment that the required number of members necessary to qualify a District Association for affiliation should be reduced from thirty to twelve.

The Rev. J. L. Seager seconded the amendment, saying that if the Association could contribute its guinea there was no occasion to stipulate for a higher number than twelve.

Dr. Bartrum, Mr. Cooper, and Captain Campbell opposed Mr. McClure's amendment, which was put to the meeting and negatived by a majority of one, the Chairman giving the casting vote against it.

After another amendment had been carried by a majority of six the original motion was put in the following form, and passed by a majority of ten: Condition 1, to be amended as follows: 'Each Affiliated County or other Association shall pay an annual subscription of

not less than one guinea, which shall become due on May 1st in each year; until such fee is paid no Association has any right of affiliation. Where an affiliated County Association is already established, District Associations of not less than thirty members may be formed and affiliated to the B.B.K.A., with the consent of the Committee of the B.B.K.A. after consulting the County Associations. Where no County Association is formed, District Associations will be received in affiliation with the B.B.K.A. without prejudice in any way to the formation of a County Association for that county at any subsequent date.'

The two following amendments, proposed by Mr. Cowan and seconded by Mr. McClure, were carried unanimously: 'Condition 4, line 3, after the word "County" add "or District."' 'Condition 4, line 6, strike out "made up to 31st December," and add after the word "year," "the date to which the accounts are made up to be stated."'

Mr. McClure moved (Condition 6, line 4) to add after the word 'Association,' the words 'before the end of March in each year.'

Mr. Hasluck seconded the motion, which Mr. Cowan said the Committee would have no objection to. It was a matter that entirely concerned the County Associations.

The amendment was carried *nem. con.*

Mr. Cowan moved to amend No. 3 of the Privileges of Affiliation.

The Rev. J. L. Seager proposed, and Mr. Graham seconded, an amendment thereto, the object of which was to permit of any judge being chosen for a show irrespective of where he resided, so long as he was approved of by the B.B.K.A.

A discussion followed, in which Messrs. Sambels, McClure, and others took part, and the original resolution was unanimously agreed to as follows:—No. 3 as amended—'Shall be entitled to submit the names of suitable persons to act as Judges, and to receive one silver medal, one bronze medal, and one certificate for each guinea subscribed, to be offered as prizes for honey, provided that not less than three pounds is offered for competition in the Bee department of the Show at which these medals are offered for competition. These medals and certificates to be open for competition only to Members of the Affiliated Association, and awarded by a Judge approved of by the B.B.K.A. No competitor to take more than one silver or bronze medal or certificate at the Affiliated Association's Shows in one year, and in the event of two silver or bronze medals or certificates being awarded to any exhibitor the next in order of merit shall receive the same, providing the exhibit is considered of sufficient merit.'

On the motion of Mr. Cowan it was unanimously agreed to amend Privilege 5, line 3, by the addition of 'and other' after the word 'travelling.'

Mr. Cowan proposed to amend Privilege 9.

After a few words from Mr. McClure and Mr. Sambels, who suggested the substitution of the words 'at least one fifth' in the place of 'one third' in line 5, the resolution was adopted by general consent in the following form:—Privilege 9, page 9, as amended—'The Central Association will provide a Judge (if required) to officiate at the shows of Affiliated Associations, providing such show is conducted in accordance with the rules and regulations of the Central Association, and that at least one-fifth of the prize money offered is open for general competition; and also an examiner to conduct local examinations of experts desirous of gaining third-class certificates in practical bee-keeping. The centre for these examinations to be named by the Secretary of the Affiliated Association, and approved by the Committee of the British Bee-keepers' Association. One month's notice (at least) must be given of the proposed examination. All travelling and personal expenses to be defrayed by the Affiliated Association.'

Mr. McClure moved the following amendment to Privilege 8:—'That the words "by the Central Association" be omitted, and at the close of the rule be added, "At the several Exhibitions held by the Central and the Affiliated Associations, and to exhibit on payment of the reduced rate of entry fees subject to Privilege 9 as amended."'

There being no seconder, the amendment was negatived without a division.

Mr. Baldwin moved in respect of Rule 5, lines 2 and 3, to insert 'one vote' in lieu of 'four votes.'

Mr. Blow seconded the amendment, upon which a division was taken, and the motion lost by a majority of 12 to 11.

Mr. Baldwin moved in Rule 7, line 3, after 'Treasurer' to insert 'the present Life Members;' and after 'Secretary' add '(if honorary).'

Mr. Sambels seconded the motion.

A long discussion ensued in which Mr. Cowan, Mr. Jonas, Dr. Bartrum, and Mr. Blow supported the retention of the Secretary's power of voting, their arguments being that he had always acted with discretion, had never exercised the power granted him, that he knew more than any one respecting the Association, and that it would be ungracious now to deprive him of the privilege without good cause.

Mr. Baldwin, the Rev. Mr. Seager, and Mr. Andrews, took the opposite view disowning any personal motives, but asserting that the amendment embodied a rule observed by all societies, that the secretary might not always be as discreet a man as Mr. Huckle, and that, so far as his knowledge of the Association's affairs was concerned, a similar remark could be applied to the secretary of every society.

The amendment was negatived by a majority of 17 to 8.

Mr. Baldwin moved that in Rule 8, page 14, after 'Committee,' at the close of rule be added, 'from those members who obtained the next highest number of votes at the previous election, and who are willing to serve.'

Mr. Blow seconded the motion.

Mr. Cowan pointed out that the rule originally existed in the form of the proposed amendment, but two years ago it had been fully discussed and altered to the present reading upon the voting of a large majority.

Mr. Sambels supported the amendment, which was opposed by Captain Campbell, and defeated on a division being taken, only four persons voting in its favour.

Mr. Baldwin withdrew the last motion standing in his name, which was of a similar character to others upon which the sense of the meeting had already been sufficiently taken.

The proceedings then terminated.

[*We postpone to our next issue the report of the Quarterly Conversazione.*—Ed.]

BRITISH BEE-KEEPERS' ASSOCIATION.

Committee meeting held at 17 King William Street, Strand, on Thursday, 21st inst. Present T. W. Cowan in the chair, the Rev. Dr. Bartrum, Hon. and Rev. H. Bligh, Rev. Geo. Raynor, Rev. R. Errington, J. M. Hooker, Captain Campbell, Rev. F. T. Scott, and the Secretary. The minutes of the last meeting were read and confirmed. The statement of accounts for the month ending January 31st were considered and approved. The Secretary reported that Mr. A. Watkins had forwarded an improved set of lantern slides to enable the Association to provide for illustrated lectures on bee-keeping. Resolved, That the best thanks of the Association be given to Mr. Watkins for the gift of these slides. A letter was read from the Berkshire Association declining the proposal to give additional prizes to any Berkshire exhibitor who may be a prize-winner at the

Royal Agricultural Show. At the close of the ordinary business the Chairman proposed, That the best thanks of the Committee be given to Mr. Hooker, on his retirement from the Committee, for the excellent work which he had done on behalf of the Association for so many years. He had been a member of the Committee since the Association was formed; he had always been a regular attendant at the Committee meetings, and was most practical and business-like in the discussion of the work. The Association owed him a debt of gratitude for his long services towards the advancement of the interests of the Society. The Committee had received his resignation with very great regret. The motion was passed unanimously.

The Quarterly Conference of County Representatives, with the Committee of the B. B. K. A., was held at 149 Regent Street, on Thursday last, Mr. T. W. Cowan in the chair. Representatives were present from the following counties:—Shropshire, Berkshire, Lancashire and Cheshire, Leicestershire, Yorkshire, Hertfordshire, and Wiltshire. The business transacted was confined to the arrangement of the dates for the quarterly conferences and examinations during the ensuing year, the following being suggested:—

Quarterly Conferences, Wednesday, May 22nd, July 24th, October 23rd, and on the day of next Annual General Meeting of the B. B. K. A.

First Class Examination to be held in London Wednesday, May 22nd.

Second Class Examination to be held at various centres as arranged by the Secretaries of the affiliated associations on November 1st and 2nd, as preferred.

KENT BEE-KEEPERS' ASSOCIATION.

The Annual General Meeting of the Association, for the year 1889, was held, by the kind permission of the Royal Society for the Prevention of Cruelty to Animals, at 105 Jermyn Street, London, on Thursday, the 10th day of January, 1889, at 4 o'clock in the afternoon.

Mr. H. G. Morris presided, over a very small meeting. The Annual Report of the Council and Balance Sheet were read, and upon the motion of the Chairman were received and adopted; a vote of thanks being given to Mr. Arthur Kenworthy for his kind services as Auditor.

The services of the Officers, Local Honorary Secretaries, and Council, were recognised in the customary manner, a vote of thanks being also accorded to the Royal Society for the Prevention of Cruelty to Animals for their great kindness in again lending their Board Room for the meeting, and also on other occasions.

The election of the Council was duly carried out, but owing to a scarceness of candidates only ten members were elected. Mr. H. G. Morris, an old and active member, was appointed Honorary Treasurer in the place of Mr. T. Nottige, resigned; and the Honorary Secretary was re-elected. The Right Hon. Earl Stanhope was re-elected President for the year, and Mr. H. G. Morris and Mr. F. H. Cudd were appointed the Representatives of the Association to the Quarterly Meetings of the British Bee-keepers' Association.

The annual drawing for *three* prize hives for the Cottager Members resulted in favour of W. Beken, Jun., The Hill, Cranbrook; F. Crocker, Barming Heath, Maidstone; and G. Kemp, of Dartford.

Extract from the Expert's Report.

'At Faversham I met with a singular case of two queens living amicably in one hive. A Ligurian queen was given to the stock in 1886, which laid remarkably well that season. But the next spring was not satisfactory, and Mr. Ivory (the owner) noticed royal cells were being raised, with the result that about June 1887 a young queen was hatched; during the season several times after he saw *both* queens. When I examined the stock on the 20th April this year, I found a queen, and made the remark to him she appeared to be an old one, he at once exclaimed, "She is the old one, and you will find the other somewhere there." And sure enough, presently I saw the daughter, the very picture of what a queen should be,—active, vigorous, and depositing eggs as rapidly as one could wish. Mr. Ivory was sure they had been in that hive for eight or nine months, and I have no doubt they had.'

USEFUL HINTS.

Weather.—When despatching our last MS. to press a heavy fall of snow commenced. On Sunday, the 10th, and the three following days, snow fell in abundance in all parts of the country. On Thursday, the 14th, a change of wind from north to west came, with heavy rain, and the snow disappeared more quickly than it fell.

Inspection.—Sunday, the 17th, and Monday were days of unusual warmth and brilliant sunshine, and the bees were thoroughly aroused, while pollen was vigorously carried into the hives chiefly from catkins on the hazel bushes, of which we have abundance in the woods near to our apiary. We took advantage of these bright days for examining several hives, and found their inmates healthy and prosperous, with breeding going on. The stores had greatly diminished, and feeding will soon be required.

Supply of Food to all colonies in need is a point of the utmost importance just now. So many stocks commenced the winter with a short supply of well-ripened and sealed food that it is most important to ascertain whether each hive contains a sufficiency, and if not to give candy until the time for syrup-feeding—towards the middle or end of next month—arrives.

Robbing must be especially guarded against, as the bees are showing a strong disposition to pilfer, even at this early period, whenever the weather permits. Owing to the late disastrous season many colonies will be found weak in numbers, and quite unable to defend themselves against the attack of stronger neighbours. It is a good plan with frame-hives to change the winter-soiled floor-boards for clean, dry ones, and to close the hive-entrances to half an inch until the season for robbing has passed. Nothing more demoralises an apiary than robbing allowed to be carried on unchecked. Hence it is of the utmost importance to check it at the very commencement. Food must never be exposed, nor the combs of any deceased colony left in the hive for bees to clean. Disease, as well as robbing, is often caused by the neglect of this precaution. Bits of comb and comb refuse carried out of the hive, dead bees about the entrance, single combats on the alighting-board, are all signs of robbing. In such case close the entrance until evening, and on opening it, just before darkness sets in, the confined robbers will rush out and return to their hives. It is advisable then to remove the attacked hive to a new and distant stand and to take every precaution against a renewal of the attack.

Full Examination of hives is not yet admissible, but when of necessity it must take place, it should be done on the evening of a fine day, but by no means during the hours of flight, otherwise robbing, encasement of queens, and manifold evils will result. We have seen a colony destroyed in ten minutes by keeping the hive open that length of time for examination at midday at this early season. Therefore the less interference with hives, at present, the better. A piece of canvas saturated with carbolic solution and drawn over the frames as the quilts are drawn aside, will enable the operator to ascertain at once, without the removal of a comb, whether food is required or not, and, roughly, the general state of the colony, amount of population, &c. This method is far preferable to the use of smoke, especially at this early season, since it causes no dis-

turbance to the bees, which simply retire to the lower parts of the combs. In one minute the examination is over, and the quilts are again drawn into place as the carbolised canvas is withdrawn, not a single bee having been injured or prejudicially disturbed. Indeed, if this method be followed, there will be little danger in manipulating to such extent at any time of the day when sufficiently warm to permit of the opening of hives.

Syrup Feeding although, as stated above, not admissible at present, may soon take the place of candy. As spring advances consumption of stores will increase in the ratio of the increase of bees in any colony, hence the necessity of a strict scrutiny as regards the consumption of food especially by the strongest and most prosperous colonies. Two or three days of compulsory fasting will assuredly ruin their prospects for the coming season, if it does not destroy the colonies. In the absence of very cold weather we usually commence syrup feeding about the middle of March, giving the syrup thick and warm from a graduated feeding-bottle which holds about three pints.

We use granulated pearl sugar (late Duncan's), and the recipe of Mr. Cowan for autumn food, viz.:—

Sugar, 10 lbs., water, 5 pints, vinegar, 1 oz., salicylic acid solution (No. 1), 1 oz., salt, ½ oz. (See his *Bee-keepers' Guide Book*, p. 151.) It is best to give the food at night, quite warm, and to cover up the feeder with warm woollen covering so that there may be no escape of heat from the hive. Three or more holes of the feeder may be turned on according to the requirements or amount of the population, and three pints will form a week's or a fortnight's supply according to circumstances.

Artificial Pollen may now be supplied to the bees. Crocuses and snowdrops on light and rich soils are in full bloom, and are eagerly visited by the bees whenever the weather permits flight. This is a decisive intimation of their needs, and the natural supply of pollen being at present very small it is well to supplement it with the artificial. Packets of pea-flour (generally in use for soup) are usually recommended, and may be purchased at little expense from every grocer. The flour is sprinkled over the crocus blooms, scattered on shavings placed in inverted skeps, or dredged into empty combs, which are then inserted beside the brood-nest.

Water is also a requisite in every well-managed apiary. A float of some kind should rest upon the surface of the water to prevent the drowning of bees, and a handful of salt dissolved in the water will render it more palatable.

Rough Winds may be expected with the approach of 'boisterous March,' therefore look over carefully the stands of hives, and see that covers or roofs are not displaced, otherwise a hasty, heavy shower may saturate a roofless colony to its very core, and carry ruin to a hitherto prosperous family.

Bee-Flowers.—Do not omit to procure a supply of bee-flora: *Limnanthes Douglasii*, wall-flowers, *Aubrietia purpurea*, *Arabis alpina*, mignonette—all of which are special favourites with the bees. The common herb of balm (*Melissa*) should be cultivated in every bee-garden, as bees are extremely fond of its scent, so much so, indeed, that we never knew a swarm to desert a skep which had been rubbed with the bruised leaves and stalks of this plant.

Wide Entrances.—We are flattered by the notice taken of our efforts to guide in the right way those who need guidance, by that veteran and renowned pioneer of the apiarian revival which has taken place in these realms during the last twenty years, Mr. C. N. Abbott, although he takes exception to our recommendation of winter treatment by wide entrances and impervious coverings. In respect to his letter (2005, p. 92) we beg to say that the quotations made from former 'hints' were general and had no special reference to any particular system of wintering. We simply described that which we had often witnessed, during an experience of nearly half a century, at this season of the year. We by no means condemn the plan of wintering preferred by Mr. Abbott, viz., the use of pervious quilts and somewhat narrow entrances. All we say is that our own bees have wintered well under impervious coverings and with wide entrances—wintered with the minimum of loss, and with every prospect of a successful future. Mr. Abbott will find, on reference to former 'Hints,' that we have quoted experience similar to our own from no less authorities than Dr. Tinker, Mr. Cheshire, Mr. A. I. Root, and Mr. Simmins. Our contention has been that closely contracted entrances—say, one-bee-passages—have conduced to internal dampness, and that pervious quilts, especially when one or two thicknesses only have been used, and given late in autumn when the bees were no longer able to propolise, have been productive of too much upward ventilation, and have destroyed many colonies which might have been wintered successfully under a better system.

Bees and Agriculture.—There is a close relationship between the forces and phenomena of nature. The winds affect the moisture, and the moisture modifies the winds. Science, which explains this relation, is man's best servant. The connexion of bee-keeping with agriculture well illustrates this relationship, and shows that the farmer needs to know the 'whys and wherefores' of all his surroundings. Charles Darwin discovered years ago that cross-fertilisation is necessary to full fruitage of many of our plants. Some yield nothing without it. Only insects can do this work for many plants. Early in the season the honey-bee is the only insect common enough to do this work to any large extent. The honey-bee was not a native of America. Thus we know why our early wild flowers are scattering, while the late ones cover the fields and marshes as with a garment. In California where no winter kills the insect hosts, the early flowers cover the plains. The honey-bee can reach the nectar of alsike clover: so the first bloom gives seed. The red clover must wait for bumble-bees, and so the second crop alone is productive. Experiments here and the history of New Zealand prove this. There no seed was produced until the bumble-bee was introduced. Now they raise their own seed. By caging bumble-bees on red clover we can secure seed from the first bloom. Hereafter, as we raise our large crops of clover seed, let us think gratefully of the beautiful bumble-bees, rich in their yellow and gold, whose joyous melody in the clover field means for us a bounteous crop and a full pocket-book. We should especially remember that owing to the cold our insects largely die off, and so for a full fruitage of our plants that bloom early we must have the honey-bee. This has been proved over and over. Any cultivated plants with sweet or showy flower seed must have insects, or they cannot bear a full harvest. Our introduced plants mostly bloom in the spring. How important then the bees! In some cases the wind may be sufficient. Doubtless in all cases insects are great helpers. How often our fruit fails of a full crop because the cold and rain shut up the bees during the time of bloom. Thus it goes without saying that the farmer and fruit-grower must either keep bees themselves, or induce their neighbours to do so, or they will fail of the best success. There must be no antagonism between the farmer and orchardist and the bee-keeper. Nature wills that they be friends. Bees never injure the blossoms of plants; their visits are always and only a benefit. Nor do bees ever destroy sound fruit. The structure and habits of bees, no less than observation, show that this is true. Bees will never attack fruit until a puncture or break in the skin lets free the juice. Then the bee is quick to save the wasting sweets.—Professor Cook (*Country Gentleman.*)

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements.)*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

JOTTINGS BY WOODLEIGH.

[2007.] *Wasps' Nests.*—In several recent numbers of *B.B.J.* there have been references to 'wasps' nests,' one esteemed correspondent doubting if the nest built in a suspended form in the roof of the shed was a wasps' nest. Permit me to inform him that I have had several built in the roof of my hive suspended by an attachment, and that I have watched their development from the first conoid segment, the size of a walnut, till the full size was reached, of, say, twenty-four inches in circumference, and of the shape of an inflated balloon. Said wasps' nest was awarded first prize at Portsmouth show, '88; exhibited at Crystal Palace show, '88, not for competition, and sold to a gentleman in London for his private vesparian collection.

Artificial Pollen.—I would impress on bee-keepers the importance of giving artificial pollen early this season. For many years past I have given a supply myself about the first week in March, but this year I have commenced already, and to-day my bees were busy collecting it from the wood shavings on which I sprinkled it. I place some shavings in old skeps or boxes, and then dredge the pea-flour, or a mixture of pea-flour (Symington) and Brown and Polson's corn-flour, on the shavings, and placing the skeps in a sheltered nook, where the sun can shine full on the bees while collecting the flour. If the shavings blow about, and give an untidy appearance to the apiary, the flour can be dredged on or into an old comb, and placed in a box in the sun. The reason I insist on placing the supply of pollen in direct sunshine is that the warmth invigorates the bees while collecting, and gives them the *vim* required to battle with chilling winds to reach home. It may be asked why I advocate the supply of artificial pollen being given earlier than usual this season? Simply because there was such a failure of both pollen and honey last year that many colonies are very short of it, especially new swarms of '88. I made a note of it after my examination of my apiary last autumn, and when one has a hundred colonies to go through, there is ample ground on which to base a calculation that other apiaries are in the same plight. Some writers advise that the pollen should be sprinkled into a comb, and placed in the hive behind or beside the cluster. This plan may answer very well, though for myself I prefer the more natural way of the two, *i.e.* for the bees to collect it from outside the hive.

Excluder Zinc.—The American 'boom' on the subject appears to have crossed the Atlantic, and the minds of English bee-keepers seem likely to be disturbed on the matter ('J. B. R.,' 1966). If he is using the British Association standard frame, he need not go to the expense of excluder zinc; but if he is using the shallow frames *à la* Heddon, he will find it necessary to use zinc honey-boards, or, more properly speaking, honey-boards, half an inch thick, with strips of zinc and wood alternating, the zinc fitting into a saw-cut in middle of wood strips, thus giving a bee-space above and below the zinc. This is the least objectionable form in which excluders can be used. 'J. B. R.,' if he wants section honey in quantity, should never work with more than ten standard frames below. I used to try years ago to work sections at the back, but could never make satisfactory progress, so I have discarded the system, and work only above frames now. I have also discarded zinc excluders from my apiary, except for bell-glasses or large supers. 'J. B. R.' will always find doctors differing on the same subject, and on a subject of this description there is no medium. It is 'excluder or not excluder.' I say, Don't! Also notice what Mr. Simmins says (1973, page 56) on this point.

Mr. Blow, in his interesting account of his visit to America, mentions (col. 1, page 31 of *B.B.J.*) Professor McLain's recipe for spring dwindling. There seems to me to be an abnormal quantity of salt in the preparation. Will Mr. Hehner, or Mr. F. Cheshire, give us bee-keepers their opinion on the constituent parts of the 'spring dwindling mixture?' If it should prove a preventative of spring dwindling, Mr. Blow will have conferred a great boon on bee-keepers by his visit.—WOODLEIGH.

WASPS AND WASPS' NESTS.

[2008.] If 'Mr. Useful Hints' and the writer of No. 1956 will make a careful comparison of the two insects, I think they will come to the conclusion that the wasp that hangs up its nest in hedges, or upon osiers, or in open sheds, or under the eaves of buildings, and in many other places, is not the same species as the one that makes its nest in the ground, as the wasp that hangs up its nest is much smaller than the other, and their markings are also different. The one that hangs up its nest having three black triangles let into the front edge of the yellow bands of the abdomen, and the ground wasp has one black triangle in the centre of the yellow bands, and one small black spot about midway in the bands on each side of it, and the ground wasp is much more covered with yellow than the other, and after being killed for a time the yellow of the ground wasp becomes brown, and the yellow portions of the wasp that hangs up its nest do not change very much; but I must qualify the above remarks by saying that I have no scientific knowledge on the subject, and may be wrong.—S. C. K.

WASPS AND HORNETS.

[2009.] In reference to No. 1934, page 625, respecting wasps' nests, in looking over my neighbour's bees this last autumn, I found a nest which hung from a wooden box, which was put on for a common super on the top of a wooden body-box. In looking round, I lifted one up which contained three full sheets of comb, but no honey. Beside the comb hung the nest, which was in a globular shape, and looked much like a rose-bud with a $\frac{3}{4}$-in. hole in the centre. It was quite hollow. There was no other entrance, only though the stock hive. It was soft and limp. I asked several friends, and none of them knew what it was, nor did I. I have seen several hornets' nests in thatch, but they have had combs about $\frac{3}{4}$ in. deep, with a U-shape cell. The whole mass would be about one foot square, any shape, and all ways in and out, but nothing in. As for a wasps' nest, I found one alive under a turning-lathe, which was all chips and dirt. It was built on the ground. The shape of it was very like a church staircase, round about, 6 in. wide at bottom, about 8 in. high, bringing off to a point, shape of a cone, from the bottom; and a fine specimen it was.

I found in the spring previously queen-wasps in my bee-hives on the floor-board, and on the outside of my straw skeps, as early as the month of March. How did they get there?—M. H. SEAMARK, *Willingham, Cambridgeshire.*

VIRGIL AND BEE-KEEPING.

[2010.] All the readers of the *Bee Journal* must, I think, feel deeply indebted to 'L.' (1950) for the pleasant manner in which he has put before them the subject of 'Virgil and the Management of Bees,' as well as 'Notes on the Management of Bees, taken from the Fourth Georgic.' His warm panegyric of the same reminds me of the remarks of the clever author of *The Honey Bee* (a shilling book brought out in 1850 by Murray as a reprint from *The Quarterly*) who calls the fourth Georgic 'the book of all books, to which the scholar will turn again and again with increased delight,' and as 'the most beautiful portion of the most finished poem of Roman antiquity;' and when, further on, alluding, as 'L.' does, to the poet's want of *personal* acquaintance with the subject of his poem, he remarks that no bee-fancier will content himself with anything less than the original, for he will there find the beauties of the poet far outbalancing the '*errors of the naturalist;*' and so far I am quite at one with the two writers.

But I join issue with 'L.' when, in the first part of his article, he asserts that 'Virgil does not appear to be able to distinguish a humble bee from a hive bee,' because, he tells us, it builds *underground—effossis latebris sub terra,** for it is to be observed, that the poet qualifies this statement by the remark, '*si vera est fama,*'—if the report be true, as if he would not vouch for the fact; and it must also be borne in mind that throughout the whole poem he treats of the honey-producing bee, and no other.

And in the second portion of his paper, when enumerating the 'Notes on the Management of Bees taken from the fourth Georgic,' 'L.' speaks of the two kinds of hive recommended by Virgil, viz., '*alvearia*' '*cavatis suta corticibus,*' and '*lento vimine texta,*' and translates the words as meaning hives made of 'cork-bark' and '*briars.*' I differ from him entirely, and think his translation less likely to be correct than the commonly received one of the 'supple or pliant osier,' and meaning, in plain English, a hive made of *basket-work*, and I have been confirmed in the correctness of this opinion by a fact which came to my knowledge in a curious way. Many years ago I was about to deliver a lecture on bees, and wishing to describe the two Virgilian hives, employed a basket-maker at Dover to make me one according to a pattern which I gave him, as my notion of Virgil's basket hive, when he offered to lend me an old folio volume on *The Science of Agriculture,*† in which apiculture was treated of as a branch of the subject, and in which, curiously enough, the use of *basket hives* was spoken of as prevailing in England at that date (1687), and which, he says, were covered externally with '*cow-dooi,*' not unlike the recommendation of Virgil alluded to by 'L.;' that osier-made or basket hives should be 'plastered outside with mud and a few leaves;' and who shall venture to say that such a hive as this was not brought into Britain by the Romans, and, perhaps, not exploded until the crafty Briton discovered that hives were more easily constructed of straw, the close texture of which was better adapted to his more northern climate?

With reference to the remaining portion of 'L.'s' interesting paper on the subject of the fourth Georgic, I should like to ask him, whether it has never struck him, as it has myself, that in describing the two kinds of bees which he represents, with poetic license, as engaging in mortal combat, Virgil intended to introduce to our notice the two kinds of bees—'*nam duo sunt genera,*' which were found in Italy at that time, viz., the common brown bee, '*mellifica,*' and the Ligurian bee, '*Ligustica*;' the description which he gives of the two kinds, both kings and subjects, I think, quite bears this out, and until I saw the beautiful Ligurian bees, '*ardentes auro et paribus lita corpora guttis,*' (the first swarm of which when introduced in England, it is allowed came off in my garden in the year 1860), I could never understand this portion of Virgil's beautiful poem, to the study of which I always turn with the same delight and satisfaction as his enthusiastic admirer 'L.'—F. T. Scott, *Hartlip Vicarage.*

* In confirmation of the poet's statement, *vide* W. B. Webster (1998):—'California, a very dry climate, there bees (*Apis mellifica*) are not unfrequently found tenanting the ground.'

† Title of book alluded to—*Systema Agriculturæ, or the Mystery of Husbandry.* Discovered by J. W., Gent. A.D. 1687.

MERITS OF VARIOUS KINDS OF GRASS AND CLOVER.

[2011.] I notice a contemporary, *Nature,* is drawing attention to the last few years of agricultural depression, and noting the discussion that has been raised as to the best means of converting cultivated land into permanent pasture, and the respective merits of various kinds of grass and clover. Last year Professor Fream, of the Downton Agricultural College, put the question to the test. He obtained sods from five-and-twenty pastures of proved and acknowledged excellence. These were planted in the botanical garden of the College, and last summer the herbage on each was cut and carefully examined. In twenty-one cases rye-grass was far the most abundant of all grassy constituents, and in a similar way *white Dutch clover* was commonest of the other plants. One specimen of choice Herefordshire pasture contained nothing but these two plants.—James Lee.

THE WINDSOR SHOW.

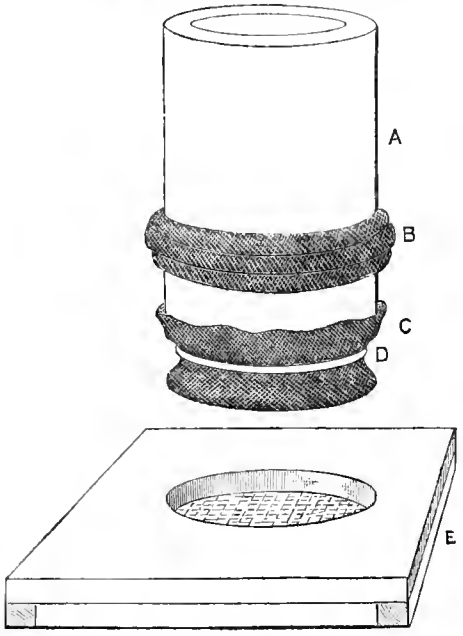
[2012.] It is not without considerable misgivings on my part that I make bold to offer further criticism on the Schedule for the above Show. In my last note under the above heading I drew the attention of the gentlemen who got up the schedule to the absence of a class for *beeswax,* and now I direct their attention, and ask the reason why there is no class for super honey in boxes from 4 lbs. up to 20 lbs.? Judging from the prize-list, 1 and 2-lb. sections seem all the rage for the English trade. That 5*l.* 5*s.* should be given for the encouragement of 1 and 2-lb. sections, and no countenance given whatsoever for a nice octagon or bell-glass super is, to say the least, an injustice to Scotland. True, Class 95 does not stipulate any given weight for comb honey, but what amateur could compete against the cwts. of honey in all forms sure to be staged, if a favourable season, by the large owners with any prospect to win? I answer, Very few, irrespective of prize-winning. Boxes holding from 4 to 6, or even 10 lbs., are the most saleable, and can be put in the market much cheaper than sections. I know several of the leading Scotch bee-keepers who can sell nothing else but boxes of honey such as I have described, and that is the reason I say an injustice has been done those who raise large boxes of honey. I do not apply these remarks in any way as a slight to the Committee for the Windsor Show; at the same time I must express my opinion that had the honey-classes been somewhat differently arranged better displays in the shape of single supers, bell-glasses, &c., would be certain to figure for competition. I consider no show complete without having a class both for single supers and bell-glasses of honey.

I offer no further criticism than to say another injustice is denied to ardent advocates and lovers of our own 'British bee,' seeing that exhibitors of observatory hives are asked to stock them with foreign bees. Possibly I may be looked upon as a fault-finder, but I think our own British bee ought to have the preference. There are not a few bee-keepers well known to the writer who look upon foreign bees as a nuisance in the apiary.

In closing this rather lengthy jotting, I do hope the season will prove favourable for honey-gathering, and that the Windsor Show will turn out a gigantic success. —JOHN D. MCNALLY, *Springburn, Glasgow.*

A SIMPLE FEEDER.

[2013.] I beg to forward a rough sketch of a simple and efficient feeder, which has been used in my apiary for four or five years, hoping it may be of use to some of your numerous subscribers. The cost of material is very small, and it is easy to make. These are now-a-days rather important considerations. The block is a piece of wood $6 \times 4\frac{1}{2} \times \frac{3}{8}$, with a three-inch hole cut out of the centre with a fret saw. A piece of perforated zinc is firmly tacked over this hole, and on the same side, round the edges, are nailed four strips $\frac{3}{8} \times \frac{1}{2}$ in. These



A. Tie-over honey bottle.
B. Roll of stocking (merino).
C. Strainer cloth or piece of fine stocking.
D. Elastic band.
E. Feeder block or stand.

strips, when placed on the frames, form a chamber, under which the bees can move about easily to get at the syrup. Without the roll of stocking shown on the bottle, outsiders would sometimes be able to get at the food and cause trouble, but when this is pushed down to fit evenly on the block when in position, no bee can get near enough to pilfer, and the escape of heat is reduced to a minimum.

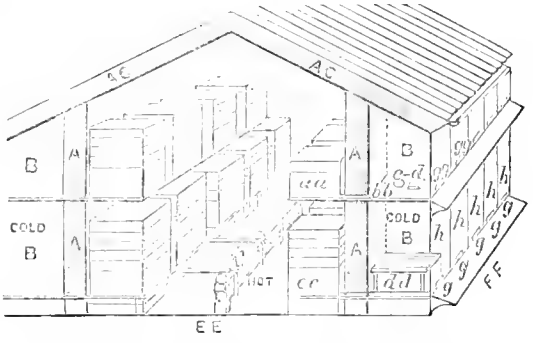
I do not even in spring use a feeder with a few holes only, as is mostly recommended in the bee books, but give them a pound honey bottle full once a-week (oftener if required), and allow the bees to take it as they choose. For rapid feeding three or four of these feeders may be placed on the frames, touching each other in a row. It is important that the bottle-neck should fit rather loosely in the hole, or, when lifted out of the block, it is apt to move the latter out of position. I use a double set of bottles, filling some of them in a shed; these are carried round the hives in a holder, quite ready to take the place of the empty ones.—HENRY SLATER, *Whittlesey, near Peterborough.*

ARTIFICIAL HEAT.

[2014.] I was pleased to see an article in the *Journal* on artificial heat as applied to bees. It is a subject that has interested me a good deal for the last ten years. I have also experimented on a small scale for one season, and to a certain extent it was successful; but I came to the conclusion that with separate or single hives outdoors it would not pay—too much trouble, and not any dollars and cents in it, as our cousins across the Herring Pond would say.

Nevertheless, I am of the opinion that any one having a furnace and hot-water apparatus for heating a hothouse or greenhouse, could, with a very little extra expense, as regards extra pipes and fuel, arrange a house apiary adjoining the greenhouse, so that the hot water could be used in heating the house apiary. If it was constructed on a proper plan it could, I think, be made a paying game. All the experiments that have been tried, as far as I have read and heard of (with the exception of the writer's experiments), have been failures, for this very reason, that heat applied to bees has caused the bees to leave their hive in unseasonable weather, and the death-rate has been enormous.

As the writer says, plants remain stationary, but applied to bees they would rush out of doors thinking summer had come all at once, only to be nipped by the biting winds of our cold spring. As I said before, I have come to the conclusion if a properly arranged house apiary could be constructed on the principle of the rough sketch enclosed, it could be made to benefit the bees as well as the bee-master.



You will see it has an inner or hot compartment, also an outer or cold compartment, *A* being a double wall packed with sawdust or other suitable material as a preventive of cold, also to confine the heat given from hot-water pipes, *d d*. The outer or cold compartment at *B*; *a a* is a hive arranged for winter and spring. You will see that when the inside is being heated, the bees, thinking that summer has come, will not be obliged to go out into cold air out of doors, they would have the outer compartment, *B*, to play in, which would be a great shelter for them on wet and cold windy days. They could then be confined in by closing the slides at entrance, *g g*. They could be supplied with water in a plate, with a float or sawdust to keep them from drowning; also some flour-cake, or even thin syrup and peaflour; being closed in no other bees could enter to rob. Of course, on a fine bright day, if the weather was warm enough, say above 50°, they could have free flight to gather honey and pollen, if there was any about.

Some might say, What a lot of trouble! We must not mind a little trouble if we want to benefit our little army of workers, any more than the gardener minds opening and shutting the ventilator in his greenhouses to give his plants fresh air. I am certain that if bees are to derive any benefit from artificial heat they must be confined indoors in unsuitable weather.

c c is a hive with cases of sections on in summer; *d d* is a hive filled with empty combs, or with half-inch starters. Well, when the bees in hive *c c* show signs of

wanting more room, after giving all the cases you have room for, then place the hive *d d*, containing combs or starters, in the outer or cold compartment, *B*. The bees will have to pass through this hive to get out-of-doors. They will start storing honey in the combs, or if starters only are given they would start comb-building on the Simmins' plan, which is said to prevent swarming; but even if it did not prevent it, the queen would in nine cases out of ten get as far as *d d* and stop there, especially if entrance *g g* was fitted with a piece of excluder zinc, to be used at swarming time only. The queen not being able to leave, the bees would return, and they are already hived without any further bother. They can be placed at *c c*, and given the unfinished section to finish, or they could be taken to a new station, as the bee-keeper thought fit. Of course, if the swarm was placed at *c c* the brood would be taken away to a new station, or divided between weak stocks (if any), or could be used for nuclei for queen-raising.

A c is a double roof about the same thickness as the inner walls, *A*, to be packed in the same way to keep in the heat and also to keep out heat and cold. *E E* shows one end of house apiary as arranged; *F F* shows front of house on one side; *h* is shutters made to take out when you want to give the feed, or put in the hive *d d*, or clean them out.

A reversible floor-board is to be used at *c c*, one side being plain for summer use, the other to have a space of about two inches for dead bees and other rubbish to collect in. It should be made moveable to clean out without disturbing the hive.

Some might say, Why have the hot-water pipes in the middle of the house apiary? My reason is this, to save pipes; for if they were placed under hives out of the bee-keeper's way it would take two rows instead of one. Besides, the pipes would give off too much heat being placed so close; our object is not to cook the bees, but to aid them. What we want is a gentle heat that finds its way into every part of the house (I mean the hot part). By fixing an inch board over the pipes, as shown *i i*, it makes a nice, dry, warm seat, if pipes are not too hot. It is also handy to put tools, &c., on while manipulating. It also makes a firm place to lay on a kind of platform, made of several boards, to stand on while manipulating the top row of hives; also it would be very handy for placing on cases of finished sections of honey to give it a final ripening. After being placed over a gentle heat it would be fit for either show or market.

Now such a house arranged so would have many advantages over hives placed out-of-doors, even if heated with bricks or banked up with manure; the success of the plan would depend upon giving proper heat at the right time. March would be soon enough to start forcing our bees. The heat must be regulated according to the weather, until real hot summer weather came, if we are lucky enough to get any. Then when old Sol is pouring heat enough to melt combs in ordinary out-door hives if not shaded, our bees, as well as the bee-keeper, would have a comparatively cool place to work in, to say nothing about manipulating cold wet seasons, getting brood chilled out-of-doors. Inside such a house it would be pleasant all the season through.

Neither would they require any extra packing or special care for winter beside seeing to their being properly fed when short of stores. Should the weather be very severe a little heat might be given to keep out frost, in fact it would be best if not allowed to go below 41°.

As before stated, if heat could be had without going to the expense of fitting up a special apparatus for the job, the little extra expense in a few pipes and fuel would not hurt the pocket much. I have said nothing about size of building, or expense of building it; that would have to be done according to taste and means at disposal.
—WALTER MARSHALL, *Buncefield, Hemel Hempstead.*

Echoes from the Hives.

6 *North Street, Derby, February 16th.—Re Dead Bees, B. B. Journal, February 7th.*—The dead bees sent by me were fed with syrup last autumn, and nothing has been given them in any way, and the only way I can account for it is, there must have been some of the syrup unsealed, so turned watery and acid, and caused a relaxation. The hive smelt very bad. I gave them a clean hive, and placed a quantity of camphor on the floor and top of combs. The old hive was very wet on some of the combs, and I noticed the top or cover (wooden) was damp from heat arising from bees, &c. It has reduced a strong hive to a weak one; and when I looked at it a few days ago, they were alive, the dampness had ceased, and they were feeding on candy, although they have plenty of good sealed food—five or six combs. The dampness I attribute to not being properly ventilated. It was one from a maker in Derbyshire.—W. T. ATKINS.

Waterhouse, near Durham, Feb. 18.—Glad to say we have had a fine open winter in this district up to the present, after a disastrous summer. I commenced winter with nine hives, lost one, eight alive, and all right at present. I should like to save all, as I introduced fresh blood into my apiary last summer, and look forward to good results by swarming.—JOSHUA FENWICK.

Easton, Stamford, Feb. 19.—Sunday, Feb. 17 was a beautiful day here; sun was quite warm, bees flying from every hive, quite a cloud in the air; was very surprised, while watching them in middle of day, to see quantities of them returning to hive laden with pollen. Bee-keepers in some of the neighbouring villages have fared badly with their bees this winter; one man with five stocks in skeps has lost all, another with ten in skeps lost all, another with twenty—some skeps and some frame-hives—lost eleven, another with ten all in frames lost eight. These men would not feed until too late, with the above result.

Hundon, Suffolk, Feb. 25.—Bees are getting scarce in this neighbourhood. I think a season like last year ought to open the eyes of the skeppist to the many advantages of the frame-hive over the old straw skep. Cottagers will not feed; if you speak to them on the subject, the answer is: 'I never did feed, and I ain't a-going to begin now; I dare say they want feeding in your boxes, but I know there is nothing beat a good straw skep.' One cottager in this village began winter with twenty-five stocks, eighteen of which have died, the remainder he has taken indoors to nurse up by the fireside, blocking up the entrance. Last autumn I tried to show that man the urgent necessity of feeding, but it was of no avail. Judging from outward appearance all my stocks are all doing well—on the wing 17th and 18th inst.—their hum almost made one think winter was over. Last autumn I drove twenty-one skeps belonging to different cottagers, and only got enough bees to build up five colonies.—C. WHITING, *Valley Apiary.*

NOTICES TO CORRESPONDENTS & INQUIRERS.

J. W. B.—*A Beginner.*—As you are anxious to begin bee-keeping, we would advise you to purchase *Modern Bee-keeping* (6*d.*) and Cowan's *Bee-keeper's Guide Book*: and having mastered these, be a subscriber to the *British Bee Journal*, or the *Adviser*, so that you may be abreast with the knowledge of advanced bee-keepers. It would also be desirable to belong to the Association of your county, so that you may come in contact with cognate spirits.

P. CRUMPTON.—*Chilled Brood.*—Your comb is not affected with foul brood; but it is a case of chilled brood, which is in the process of being dried up. If

your other combs are like that sent, it would be desirable not to use them again, foundation being so cheap.

A Poor Man.—*Transferring.*—Your best plan would be to place the spare combs you have into the untenanted frame-hive, upon these lay a piece of excluder zinc. Then drive the skep until the queen goes up into the empty one. Run the queen and bees through the entrance into the frame-hive and place the skep, with combs and brood, over the excluder zinc. In three weeks' time after driving, the skep can be removed, the bees driven from same and placed in frame-hive, as then all brood will have been reared and the combs emptied in skep. If this is done before the honey flow sets in there will be no honey stored in the old combs of skep; these can be melted down. Do not transfer until skep is full of bees and only during warm weather. See that the frames are well covered over; the portions not occupied by skep.

W. H. Ley.—*Early Pollen Gathering.*—See Mr. W. B. Webster's letter in last issue, page 90. The unprecedentedly mild weather during this winter has been the cause of many flowers blossoming which otherwise would not bloom until much later. Yellow jasmine, which flowers from December till March, has been much frequented by bees this season. A fine specimen of this plant we have growing over the porch of our house, has been fairly 'roaring' with bees on several fine warm days during this winter. We now have crocuses, snowdrops, coloured primroses, yellow primroses, and wallflowers in bloom, which the bees are very busy upon. See also 'Useful Hints,' p. 102.

W. J. B.—*Address of Bee-keepers.*—We do not know of any practical man in your immediate neighbourhood. Mr. W. B. Webster, of Binfield, Bracknell, a few stations further down on your line of railway, would, we know, give you any advice. We should always be pleased to answer definite questions in these columns.

Daylesford.—The bees have died from natural causes, being old bees when they were packed away for the winter. The peculiar season of last year led us to expect that we should have many reports of bees dead and dying. The mortality of the bees in your neighbourhood has been very great. We shall be pleased to have an 'Echo,' if convenient, from your locality.

C. G. T.—*Dead Bees.*—From the appearance of your bees with their heads in the cells we would suppose that they had died of starvation. There is a considerable amount of hazard in the preservation of condemned bees after such an adverse season as the last. Your packing was not at fault; but seeing that the bees refused the food provided, there must have been some defect in the syrup provided.

C. A. G.—1. Dines, Maldon, Essex. 2. The sample of sugar will not prove so useful for making syrup as good lump sugar.

Business Directory.

HIVES AND OTHER APPLIANCES.

Abbott Bros., Southall, and Merchants' Quay, Dublin
Appleton, H. M., 256a Hotwell Road, Bristol.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Burtt, E. J., Stroud Road, Gloucester.
Edey & Son, St. Neots.
Godman, A., St. Albans.
Howard, J. H., Holme, Peterborough.
Hutchings, A. F., St. Mary Cray, Kent.
Meadham, M., Huntington, Hereford.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.
Walton, E. C., 82 Emmanuel Street, Preston.
Webster, W. B., Binfield, Berks.
Woodley & Flood, 26 Donnington Road, Reading.
Wren & Son, 139 High Street, Lowestoft.

HONEY MERCHANTS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
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Edey & Sons, St. Neots.
Howard, J. H., Holme, Peterborough.
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FOREIGN BEES AND QUEENS.

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Blow, T. B., Welwyn, Herts.
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Howard, J. H., Holme, Peterborough.
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METAL ENDS.

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Meadows, W. P., Syston, Leicester.
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Blow, T. B., Welwyn, Herts.
Edey & Sons, St. Neots.
Howard, J. H., Holme, Peterborough.
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ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

WINDSOR MEETING, 1889.

PRIZE LIST FOR HIVES, HONEY, &c.

To be obtained of J. HUCKLE, Sec. of the B. B. K. A., Kings Langley, Herts.

Exhibits in Classes 1, 3, 4, 5, 6, 7, 8, 9, 10, 11 (sections excepted), must be manufactured by the Exhibitor. Exhibits in Class 1 and in Class 19 to be staged and repacked by the Exhibitor.

CLASS 1.—For the best collection of Hives and Appliances, to consist of the following articles:—One Frame-hive, priced at 15*s.*; one ditto, priced at 10*s.* (*Note.*—These Hives must be fitted with arrangements for Storifying.) One Observatory Hive; one Hive of Straw or other material, not entirely of wood, for obtaining either Comb or Extracted Honey; one pair of Section Crates fitted with Sections; one Extractor, one slow stimulating Feeder, one rapid Feeder; one Smoker or other Instrument for quieting Bees; one Veil, one Swarm Box for travelling, capable of being used as a Nucleus Hive; one Travelling Crate for Comb Honey; five other distinct articles not specified at the discretion of the Exhibitor. Each article to be priced separately. No articles must be added to the collection, nor any portion of the Exhibit removed during the Show. First Prize, 40*s.*; second Prize, 30*s.*

CLASS 2.—For the best Observatory Hive stocked with Foreign Bees and Queen. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 3.—For the best and most complete Frame-hive for general use, unpainted. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 4.—For the best and most complete Frame-hive for general use. The Hive shall consist of (1) a Floor-board on four short legs; two Chambers or Body-boxes, equal in size, similar and interchangeable, both to have porches, with entrances not less than 12 in. wide, that can be contracted at pleasure, each chamber to be capable of holding at least ten Standard Frames, but only one set of Frames with strips of foundation fixed and two division-boards to be supplied. (2) One Case of $4\frac{1}{2}$ by $4\frac{1}{4}$ Sections, with foundation fixed and separators, of such size as to admit of its being placed inside the chamber. (3) A substantial Roof, sufficiently deep to cover a case of sections and afford ample protection to the whole Hive, the price of each part, namely, stand and floor-board, body-box, case of sections, and roof, to be given separately, the whole not to exceed 15*s.*, unpainted. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 5.—For the best and most complete Frame Hive for general uses. The Hive shall consist of (1) one Chamber or body-box, containing ten Standard Frames having strips of foundation fixed, two division boards, entrance porch, and floor-board, the chamber capable of being used with a second of the same pattern. (2) One Case of twenty-one Sections, $4\frac{1}{2}$ by $4\frac{1}{4}$, with foundation fixed and separators. (3) A Roof sufficiently deep to cover one case of sections at least, the price of each part, namely, floor-board, body-box, case of sections, and roof to be given separately, the whole not to exceed 10*s.* 6*d.*, unpainted. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 6.—For the best Honey Extractor, price to be taken into consideration. First Prize, 15*s.*; second Prize, 10*s.*

CLASS 7.—For the best Honey Extractor, price not to exceed 12*s.* 6*d.* First Prize, 15*s.*; second Prize, 10*s.*

CLASS 8.—For the best pair of Section Racks, completely fitted for use and interchangeable, price not to exceed 3*s.* 6*d.* each. First Prize, 15*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 9.—For the best Feeder for slow stimulating feeding. First Prize, 10*s.*; second Prize, 5*s.*

CLASS 10.—For the best Feeder for quick autumn feeding, capable of holding at least 5 lbs. of food at a time. First Prize, 10*s.*; second Prize, 5*s.*

CLASS 11.—For the best Smoker. First prize, 10*s.* second Prize, 5*s.*

CLASS 12.—For Useful Inventions introduced since 1887. Special Prizes according to merit.

CLASS 13.—For the best 12 Sections of Comb Honey, the gross weight to approximate 24 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 14.—For the best 12 Sections of Comb Honey, the gross weight to approximate 12 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 15.—For the best 6 Sections of Comb Honey, the gross weight to approximate 6 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 16.—For the best Exhibit of Run or Extracted Honey in jars, not exceeding 2 lbs. each, the gross weight to approximate 24 lbs. First Prize, 30*s.*; second Prize, 20*s.*; third Prize, 10*s.*; fourth Prize, 5*s.*

CLASS 17.—For the best Exhibit of Heather Honey (Comb or Extracted), the gross weight to approximate 12 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 18.—For the best Exhibit of Granulated Honey in jars, not exceeding 2 lbs. each, the gross weight to approximate 12 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 19.—For the best Exhibit of Comb and Extracted Honey, in any form, staged on space 4 ft. by 4 ft., height not to exceed 5 ft. above the table. The gross weight of each kind to be stated. First Prize, 60*s.*; second Prize, 40*s.*; third Prize, 20*s.*

The Exhibits in this class to be staged by the Exhibitor.

[A Silver Medal, independently of Money Prizes, will be given for the Exhibit most tastefully arranged.]

CLASS 20.—For the best plan and design for an Apiary of 50 Hives on two or more acres of land, to include a suitable building for extracting and general work. The design to show arrangements for growing Honey- and Pollen-producing plants, attention being given to the value of the crops for other purposes. First Prize, 40*s.* and Silver Medal; second Prize, 20*s.* and Bronze Medal.

CLASS 21.—For the best Diagrams suitable for a Lecture on Bee-keeping, or Technical Lessons in Rural Schools. First Prize, 40*s.* and Silver Medal; second Prize, 20*s.* and Bronze Medal.

CLASS 22.—For the most interesting and instructive Exhibit of any kind connected with Bee-culture not mentioned in the foregoing Classes. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

The Council reserve to themselves the right to publish for Educational purposes any Exhibit entered in Class 20 and 21.

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THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.'

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Editorial, Notices, &c.

IMPORTANT ANNOUNCEMENT.

On and after July 4th next the *British Bee Journal* will be reduced to one penny.

RAILWAY RATES.

We desire to call special attention to the action being taken by the several railway companies under the Canal and Railway Traffic Act, 1888. This Act requires that each Company should deposit with the Board of Trade a schedule of their maximum charges for carriage of goods, and gives power to any manufacturer or trader to lodge an objection against such charges. The time given for making such objections is limited, and will expire early in April.

It would appear that the whole of the railway companies are acting in concert, and the general effect of their proposed rates may be said to give them the power to increase their charges on all goods connected with the bee-keeping industry by something like 50 per cent. It will be seen from another column that the Committee of the British Bee-keepers' Association have had the matter under consideration, and we would strongly advise each manufacturer of appliances and others connected with the bee-keeping industry to make every possible effort to prevent the proposals of the railway companies being confirmed by the Board of Trade.

ROYAL AGRICULTURAL SHOW AT WINDSOR.

The Committee of the British Bee-keepers' Association, in the concluding paragraphs of their Report for the past year, direct the attention of bee-keepers especially to the arrangements which have been made for the representation of the Association at the forthcoming Jubilee Exhibition of the Royal Agricultural Society to be held in Windsor during the last week in June. This Exhibition will be held under the immediate patronage of Her Majesty the Queen, who has consented to act as President of the Royal Agricultural Society for 1889.

We believe that the bee-keeping community throughout the kingdom will be fully in accord with the Committee in their desire that the Bee Department of the Exhibition should be worthy of the occasion, and that every possible effort should be made to demonstrate the importance of their special industry. In order to carry this out in a thoroughly satisfactory manner the Committee will require the cordial co-operation of all interested in the subject. A considerable sum of money will be needed to cover the additional expense which must be incurred. Numerous additions have been made in the schedule of prizes, which have been doubled in value.

The Department should be arranged tastefully, and made suitable for the reception of Royal visitors. The lecturing department should be substantially fitted up, capable of standing the pressure of the enormous crowds of people who will probably be present during the week over which the show extends. All this should be done, and done with no niggard hand. The Committee draw attention to the fact that the Association possesses no funds wherewith to meet this extra expenditure, and they lament that the educational work of the Association does not proceed so fast as could be desired. This is not a satisfactory condition of affairs, especially at a time when the subject of agriculture is to the front.

And here we would desire to call attention to the remarks of the worthy President at the late Annual Meeting of the B.B.K.A., respecting the formation of an Agricultural Institute. The Committee have lost no time in responding to her Ladyship's call, and have appointed the Chairman, the Vice-Chairman, the Rev. J. Lingen Seager, and Mr. H. Jonas, to act with the President in this matter. Looking at the present position of our favourite industry, we consider that the special fund opened by the Committee should be of a broad and comprehensive character, assisting both the Windsor Exhibition and the work of technical instruction in which bee-keepers in the future will probably form a part of education in agricultural pursuits. It is most desirable that a strenuous effort should be made to take advantage of the present opportunities for the advancement of apiculture.

We venture to hope that the fund now opened

will be heartily responded to. The following subscriptions have been promised:—

Mr. H. Jonas	£2	2	0
Mr. Thos. W. Cowan	3	3	0
Rev. E. Clay	1	1	0
Captain C. D. Campbell	1	1	0
Proprietor *British Bee Journal*	3	3	0
Rev. Dr. Bartrum	0	10	6
Rev. Geo. Raynor	1	1	0
Hon. and Rev. H. Bligh	1	1	0
Rev. F. T. Scott	2	2	0
John Huckle	0	10	6
Geo. Henderson	0	10	6

We would also recommend bee-keepers and others to procure a prize list of the Windsor Show. No doubt there are many who have a small quantity of honey on hand, and who might be able to assist with an entry or two; such entries supplemented by new honey, providing we are favoured with an early harvest, will add considerably to the attractiveness of the exhibition.

TO BEE-KEEPERS IN SCOTLAND.

The Editor, being desirous to encourage bee-keeping throughout Great Britain, considers it desirable to have in Scotland a bee-keeper who would undertake to reply to queries and represent Scotch bee-keeping as much as possible. Being in the southern part of the kingdom our replies to queries may possibly not be altogether suitable to those in Scotland. With this object in view we have made arrangements with Mr. William M'Nally, Glenluce, N.B., to reply to Scotch queries, and occasionally to give short articles suitable to Scotland. Mr. M'Nally's experience as a bee-keeper is already well known, and he has devoted a large portion of his time to bee-keeping as a source of income with success, so that bee-keepers may depend on having their questions answered in a practical manner. Queries the replies to which are required to appear in the *Journal* should reach Mr. M'Nally by Saturday morning; in the *Adviser* by the 20th of the month.

MINORCAN BEES.

Several Minorcan queens were forwarded to advanced bee-keepers during the past year, but in consequence of the season having proved so adverse, we have received no reports as to the virtues of this race in our country. We may reasonably expect that the coming season may be more hopeful, and that we may look forward to hear further of the qualities of Minorcan bees. The race is spoken of very highly, and it is described as gentle, hardy, and prolific. We note from our advertising columns that Mr. F. C. Andreu, of Port Mahon, Minorca, is desirous of introducing these queens to the notice of British bee-keepers, and in the interest of our industry we hope that they may take advantage of the opportunity thus presented to them.

BRITISH BEE-KEEPERS' ASSOCIATION.

Quarterly Conversazione.

At six o'clock the Quarterly Conversazione was held. Mr. F. H. Meggy (County representative for Essex) was called to the chair. After a few introductory remarks from the chairman, Mr. Cowan proceeded to read his paper on—

The Choice of a Hive.

The subject which I have chosen for to-night, namely, 'The Choice of a Hive,' is not a new one by any means, for we have at different times had excellent papers read on hives and hive construction; but it is one of importance to bee-keepers, and more especially to those who are about to make a start in bee-keeping, and to whom a little timely advice derived from practical experience is often a saving of time and money. No one who intends to devote himself to bee-keeping should think of beginning without getting some advice from a practical bee-keeper, or studying some of the bee literature of the day. It is, however, very often that the bee fever is caught at some of the shows, and it is here that the novice's first perplexity begins. He will see a large number of hives, good, bad, and indifferent, and he will be sorely puzzled which to choose, unless he has a friend who can explain the advantages of one over another. Nor will he be less puzzled if he sends for the catalogues of the different hive-makers, for in them he will also find an endless variety.

It is my intention in these remarks to discuss the general principles of hive construction, and the requirements of a good hive that combine simplicity with ready adaptability to any method of working that may be desired, whether for increase of bees, comb or extracted honey, queen-rearing, and any or all combined, and to give my reasons for what I consider essential points. Bees, it is true, will work in almost any sort of receptacle, and we are frequently told that it is the bees and not the hives that produce honey. While this is quite true, there is no doubt that bees succeed better in those hives which we can adjust to their requirements. I take it that the main object of the bee-keeper is to secure a surplus of honey, therefore the hive should be adapted principally for this purpose.

There is a great diversity of opinion on the general principles of hive construction, but there are certain fundamental principles upon which all hives should be constructed, and a want of knowledge of these principles often leads to disappointment. Mr. Langstroth mentions no less than sixty-one requisites for a complete hive, but to enumerate all these would take up too much of your time. Nor is it necessary, for we can lay down the chief requirements of a good hive to be—

1st. Simplicity of construction, consistent with strength, completeness, and durability, lightness, and good workmanship.

2nd. Perfect elasticity and ease in manipulation, with the least possible disturbance of the bees and the minimum of labour to the bee-keeper.

3rd. Ready adaptability to any method of working the bee-keeper may desire, whether for increase of bees, comb or extracted honey, queen-rearing, and any or all combined.

4th. Perfect protection from the weather, and insensibility to changes of temperature.

These, then, are the essential requirements as laid down by most of the leading bee-keepers, either in manuals or in their writings. To these I would add—

5th. Easy separation of parts for purposes of cleansing and disinfection.

Simplicity is very frequently overlooked in hive construction, and this is often not to be wondered at if we bear in mind that many who make and show hives are either novices at bee-keeping, and have not made themselves masters of the habits and requirements of bees, or

mere theorists and such as we sometimes call mechanical geniuses, but whom you must not confound with the practical, mechanical geniuses to whom we are often indebted for really useful inventions. The former fancy that, by a screw here and a dodge added there, a system of levers or a crank, an improved hinge or fastener, or a complicated mechanical contrivance, they are really making an improvement which will immortalise their names and be of benefit to the practical bee-keeper. This is a great delusion, for not only in this way are often introduced many notions that have long been discarded, but no really practical bee-keeper would for a moment tolerate such nuisances.

The British B.K.A. have, as I think, wisely introduced classes for hives in which there are specified the requirements of such hives. This gives sufficient diversity of form according to the fancy of the maker, but at the same time the hive has to conform to certain requirements which are based upon some of the principles I have enumerated.

Hive construction has been greatly simplified by the adoption of a Standard frame; and although much has been said against it, I believe it has proved a great boon to British bee-keepers. Before the adoption of the Standard many different-sized frames were in use, and almost every maker had a size of his own. The result was that if a bee-keeper wished to purchase any other description of hive to that which he was using he had to introduce another complete set of appliances. Thus the full advantages to be derived from the moveable-comb system were not secured.

All the frames in an apiary should be exactly the same size, and made accurately from good seasoned wood free from knots. I have often seen hives at shows where there was a difference of nearly a quarter of an inch in the length between the top and bottom, and instead of being square at the angles and parallel between the sides the frames diverted so much as to touch the sides. A good frame should hang perpendicularly, and the two side bars should be exactly a quarter of an inch from the sides of hive. Unless this is so we cannot expect straight combs, built evenly within the frame, and manipulating them is rendered much more difficult. Of course the size of the frame determines the width and depth of hive. As the frame is 14 inches long we have to make the hive $14\frac{1}{2}$ inches wide. The depth of the frame is $8\frac{1}{2}$ inches, consequently allowing three-eighths of an inch passage beneath the frames; the sides of the hives must be $8\frac{7}{8}$ inches. This is just right if 9-inch boards are used, but the hive will be none the worse if we can allow the full width of 9 inches, and give half an inch below the frames. The wood used for making the hive should be thoroughly well seasoned, seven-eighths of an inch thick, free from dead knots, and not too hard. Pine is the best wood for the purpose because it is easily worked, is light, and a better non-conductor of heat than harder woods. The hive may be made to take ten or more standard frames, but it must also admit of being reduced to the strength of a small colony, or, on the other hand, enlarged to the requirements of the colony when at its full working strength. This can be done either by the addition of frames on the same level or by placing a second similar hive on the top. To enable us to expand and contract the hive we require a division-board. This is really a moveable side by which the space occupied by the bees can be reduced at the discretion of the bee-keeper. It makes the hive perfectly elastic, and at the same time enables us to move frames and manipulate them with perfect ease. A floor-board should be made $1\frac{1}{4}$ inches thick, and should be clamped in a way to prevent its warping. Although I prefer a loose floor-board, there are others who like it fixed to the hive, but this is not an important point. Also the entrance may either be cut in the floor-board or in the side of the hive. Whether the frames should be placed parallel to the entrance or at right angles to it is another debateable point, and I suppose we shall always have advocates of both plans; for my part I prefer what is known as the 'cold system,' as I have always been more successful with wintering on that plan than the other. Shall we have anything to keep the frames the proper distance apart? This is an important question, but in answering it another question arises, What is the proper distance? If you will look through the former volumes of the *B.B.J.* you will see that I have always, for the last fifteen years, objected to distance-pins, broad-shoulders, staples, or any other means of keeping the frames at a certain distance apart, because I have maintained that the distance during the time of brood-rearing and during the repose of bees in winter should vary. The former I stated should be $1\frac{1}{4}$ inches from centre to centre, and the latter may with advantage be from $1\frac{3}{4}$ to 2 inches. (*See B.B.J.*, 1881, p. 30.) I was for a long time alone amongst British bee-keepers in advocating and practising this plan, as will be seen by reference to the back volumes of the *B.B.J.*; but since the method has been introduced in connexion with the Heddon hive system, it has attracted more attention here, and already a good many have followed my example. There are even frame ends so constructed now that they give two distances; for beginners they may be useful, and so long as there is a demand for them no doubt they will be made; but I might mention that I did not come across them anywhere in America, and in this country I have never seen frames manipulated any faster by their use. I do not consider them an essential, and in judging hives I should ignore them altogether. However, if they were there I should be careful to observe if they fitted properly.

I have now enumerated the essentials of a hive, viz., a four-sided box in which the frames hang perpendicularly, and in which they may be moved horizontally and raised vertically with the least possible disturbance of the bees, a floor-board with entrance to which either blocks or plain slides can be fitted, and a division-board. A quilt, or some such covering over the frames, completes the hive. Such a hive, made of good materials and without complicated mechanical appliances of any sort, certainly complies with requirements No. 1 and No. 2. There is nothing to prevent perfect ease in manipulation, and as regards elasticity, the division-board allows the hive to be reduced to as small a compass as wanted, and by the addition of a second or other storeys of the same size any expansion that may ever be required can be given.

Such a hive would also comply with the third requirement, and is equally adapted for increase of bees, queen-rearing, or production of honey. For extracted honey, the same sized hive can be used, and one placed above the other. There is a tendency to advocate shallow frames for extracting, but I have tried both sorts, for I had quite a number of Carr-Stewarton body-boxes and Neighbour frame supers, but did not find that I got any more honey by using them. If I had them by me, I would use them, but I should certainly not take the trouble or go to the expense of getting them if I were working for extracted honey. Our standard frame is not any too large or too deep for this purpose, and if we use this we have not the bother of two different sized boxes, and two different sized frames in the apiary. I know the usual objection will be raised that if we give the bees another box the same size as the one they occupy, there would be too much space, and the bees could not fill it, consequently either work would not progress, or brood might become chilled. But why must we give the whole space? We have division-boards, and we can reduce the size of second storey to just what size we please. And what is quite as important, we can place our frames just where we like,

either in the middle or at the sides. By placing a piece of American cloth over the frames where we do not wish the bees to ascend, they are effectually shut off from the upper compartment. For comb honey of course racks or crates are required, and these should be as simple as possible. In speaking of simplicity of construction, it will be naturally supposed that, as I was one of the first to use perforated exeluder zinc on a large scale, and the first to exhibit large supers worked above such zinc (*B.B.J.*, 1874, p. 91), and the first to introduce zinc with $\frac{5}{8}$ perforations, I should say something about its revival and use now. When I used this zinc, an account of which you will find in *B.B.J.* for March and April 1875, pages 186 and 207, there was no objection as to bees not being able to get back from the supers, and dying on the exeluder, for I had traps to all my supers, and I never found a single dead bee in any of them. I continued using the excluder as long as I worked supers, and tried this as well as the long-holed zinc introduced by Mr. Abbott in working sections. However, I found that I got quite as good sections without it, and certainly they were quieker filled than wheu I used the excluder. For extracted honey they are, I think, useless, and I prefer to allow the queen full liberty to lay to her utmost capaeity. This she will do in two boxes, and there ought to be no difficulty, with proper management, to restrict her to them. The mistake made I think is not giving the queen full play and plenty of room, and this leads to swarming. Give the bees ample room, and even with the most prolific races swarming is in this way easier prevented than by any other method known. Since I have given up perforated zinc, I have several times tried it, but always with the result that I felt that I had rather work without it. Adapting boards with slots, in which were slipped perforated zinc strips, I used for my glass supers in 1875, and also in Stewarton hives, but I never liked them. On the whole I think they are unnecessary, and management is simplified by not using them. However, opinions differ in this, as in many other things, and so we find some of our best bee-keepers advocating them.

We now have a hive complete, but it would not comply with our fourth requirement. In order that it should do so, we need an outer case, and the space between it and the hive's sides filled with some warm, non-conducting material. Cork-dust is used, but the most easily procured is chaff, which answers every purpose. The outer casing should be painted a light colour, as being the best non-conductor, and a rain-proof roof, with all joints made in such a way that they prevent the entrance of wet, gives us the necessary protection, and reduces to a minimum the effects of the extreme changes of temperature. Here it might be as well to mention that I prefer an alighting-board extending a considerable distance in front, and sloping to the grouud, because in windy weather, when bees return laden, they drop on the alighting-board, and have a chance of crawling up to the entrance; whereas in hives on legs, I have seen hundreds of bees blown right under the hive on to the ground, and not able to rise. The loss of life in such cases is frequently very great, and is entirely avoided by having the sloping alighting-board. The floor-board of hive should not be placed directed on the ground, but on a stand 6 in. high, to which the alighting-board may be fixed, and the stand can be further raised on bricks. In this way there is a free circulation of air under the stand, and the ground beneath is kept dry. With a stand such as I use there is no danger to be feared from damp.

Lastly, every part should be so constructed that it can be easily cleaned and disinfected. Now, hives fixed on legs are unwieldy things to clean in the way I think hives should be cleaned. I have had experience with foul brood, and at one time had forty hives affected with it. In cork-dust and chaff hives I had the greatest difficulty in eradicating the disease, and I did not get rid of it until I took the hives to pieces and boiled every part separately. The experience gained, which I paid for dearly, induced me to construct a hive which I could with the greatest facility cleanse, and which fulfils all the requirements that I have mentioned. I do not think that I need go into a lengthy description of the hive I use, for it is known to most of you; but by way of illustrating my remarks, I will merely point out some of its essential features. All the parts are separable, and can at any time be easily cleaned. It consists of stand, with sloping alighting-board, loose floor-board, body-box with division-board. plain frames, two storeys of outer cases, in order that bees may be examined in windy weather, a roof sloping towards the back, that rain may not drip on to the alighting-board. Then, in winter, a bottomless box, with a piece of calico tacked on, is placed on the frames. Chaff is poured into this, and allowed to run over, and fill the space all round. To remove the chaff, we have merely to lift the outer case, and the chaff falls out on a sheet of paper placed to receive it, and is then thrown away. Chaff being cheap, I do not consider it worth keeping, but renew it every autumn. The hives are interchangeable, and can be worked one on the top of another to any height for extracting purposes, and the outer cases are also interchangeable. Frequent change of hives and thorough cleansing every time a part is used is the best preventive of foul brood. This hive is adapted for auy system of management.

I hope you will not think that I wish to advocate this hive in preference to any other. I have merely selected it as an example combining the principles which I think should guide any one in the choice of a hive. Our leading manufacturers have realised the necessity for simplicity, and to their credit be it stated that many hives may now be had embodying most, if not all, the requirements that I have mentioned. The fifth requisite I should particularly wish to call their attention to, as it has not received the consideration it deserves, and I should be glad to see hives so constructed that they could be easily taken to pieces for cleansing purposes. Whether frames should have broad shoulders, distance pins, or any other means of preserving a fixed space, whether they should be parallel or at right angles to entrance, and whether we should use excluder zinc or do without it, are all trifling matters which every one must settle according to his own faucy.

In conclusion I have to thank you for your kind attention. Time would not permit me to enter more fully into the matter, but my aim has been to discuss briefly essential principles, and I shall feel amply repaid if in doing so my remarks may have been some help to any one in the 'choice of a hive.'

[*The discussion on the foregoing paper will be given in our next issue.*]

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

Special meeting of the Committee held at 105 Jermyn Street on Wednesday, February 27th. Present—T. W. Cowan (in the chair), Hon. and Rev. H. Bligh, Rev. J. L. Seager, P. P. Hasluck, J. Garratt, and the Secretary. It was resolved—'That Mr. T. W. Cowan be elected Chairman and the Hon. and Rev. H. Bligh Vice-Chairman for the ensuing year.' The various sub-committees were also appointed—(1) Finance; (2) Educational; (3) County Associations; (4) Exhibitions, the Chairman and Vice-Chairman being elected *ex officio* members of each sub-committee. In accordance with the suggestion made by the President at the Annual General Meeting of the members, the Chairman, Vice-Chairman, the Rev. J. L. Seager, and Mr. H. Jonas, were elected to act with the President in reference to the pro-

posal to form an Agricultural Institute. Attention was called to the fact that the several railway companies (in accordance with the Canal and Railway Traffic Act, 1888) had deposited with the Board of Trade a schedule of increased rates and terminal charges which, if sanctioned, would press heavily on the bee-keeping industry. Resolved—'That inquiries be made in respect to the action being taken by the various Agricultural Societies in reference to these charges, and that every possible effort be made to protect the bee-keeping industry.' It was resolved to hold the Committee meetings during the ensuing year on the third Tuesday in each month, excepting those months fixed for the Quarterly Conferences, viz., May, July, and October. The suggestion made by the County Representatives that the Quarterly Conferences be held on May 22, July 24, and October 22, was confirmed.

It was resolved to reprint the leaflet *How to Commence Bee-keeping*, and to invite suggestions in respect to the publication of a leaflet on *Honey as Food*.

SHROPSHIRE BEE-KEEPERS' ASSOCIATION.

The members of this Association held their Annual General Meeting at Shrewsbury on Friday, the 22nd ult., when we were pleased to find greatly increased attendance, including the Rev. E. D. Carr, Messrs. W. G. Preece, jun., H. Hignett, H. Morris, Beale, Horton, Bradley, Lewis, Whittingham; Miss M. E. Eyton, Mrs. Sankey (Boreatton), &c. The Rev. E. D. Carr was voted to the chair, and presented the annual report and balance-sheet, with a list of officers, which was as follows:—President, T. Slaney Eyton, Esq.; Vice-Presidents, The Mayor of Shrewsbury, George Butler Lloyd, Esq., the ex-Mayor, Vincent Crump, Esq. Patrons, The Right Hon. the Earl of Powis, Sir Thomas Meyrick, Bart., the Hon. R. C. Herbert, James Watson, Esq., M.P., J. Bowen-Jones, Esq., the Right Hon. the Viscountess Hill, the Hon. Miss H. Kenyon, H. H. France-Hayhurst, Esq., J. J. Bibby, Esq., Captain G. Smythe, R.N. Committee, The Rev. W. Wingfield, Miss Alice Downward, Mr. Roff King, Mr. E. Wood, the Rev. E. Donald Carr, the Rev. E. C. Hardy, Miss M. E. Eyton, Mr. W. G. Preece, jun., Mr. Fryer Bennett.

In the report the Committee state that, although at the Shrewsbury Exhibition the entries in the honey classes fell short in consequence of the disastrous honey season, it was one of the most important provincial shows of the year. The Committee beg to congratulate the members upon the available balance, but point out it is chiefly composed of unawarded prize money, and at the same time express their gratification at the attendance as judges of T. W. Cowan, Esq., and of T. Clegg, Esq., of Loppington Hall, Salop, whose opinions of the show were very favourable. The Committee succeeded in obtaining the services of the veteran expert-in-chief, Mr. J. S. Baldwin, whose free lectures and demonstrations of bee management were most popular and well attended. The Committee propose to include various new classes and novel attractions for this year's exhibition, and trust to receive the increased support of all members. Twelve new members have joined in 1888, making a total of fifty-five.

Mr. Preece, in moving the adoption of the report, alluded to the increasing importance and popularity of the objects of the Association, the list of members and patrons proving influential support and sympathy. The careful expenditure was evidenced by the fact that out of a nett income of 36*l.* upwards of 20*l.* was offered as prizes for competition, the sum of 7*l.* 18*s.* 2*d.* being the balance in hand. He had pleasure in reporting that the Shropshire Horticultural Society had shown its appreciation of the efforts of the Association by increasing its annual grant this year to 20*l.* Mr. Preece further commented upon the valuable services rendered by Mr. J. S. Baldwin, the expert engaged to lecture at the last show, and proposed that the compliment of honorary membership be conferred upon him, which suggestion was agreed to.

The report having been adopted, the following were elected in addition on the Committee—Mr. J. Clegg, Mr. H. Hignett, and Mr. T. Horton.

A vote of thanks was also passed to the judges at the last exhibition who kindly gave their services. The proposal to affiliate the Association with the British Bee-keepers' Association was then discussed, and after considering the responsibilities and advantages accruing, the suggestion was unanimously carried, Miss M. E. Eyton being elected delegate to the central meeting in London.

Miss Eyton proposed that a limited number of the Association medals be placed at the disposal of any district or village Flower Show Committees who might apply for the same, such to be awarded for honey. It being suggested that by this means the objects of the Association would be furthered, the proposal was agreed to, the Committee to decide upon any applications to be granted. It was also carried that any village or district which could organize a meeting for the advancement of bee-keeping should be assisted by the free services of a local lecturer during the winter months.

New members were proposed and elected, the Right Hon. the Earl of Bradford being among the number. As new rules were rendered necessary in consequence of affiliation with the British Bee-keepers' Association, the draft of such rules was considered and affirmed; and, as it was decided that as the industry of modern bee-keeping does not make sufficient progress among the labouring classes, the hon. secretary was desired to bring the objects of the Association strongly before the notice of all those who might be interested in bettering their condition, and to issue a circular calling attention to this valuable mode of improving their position.

The Chairman proposed a vote of thanks to the hon. secretaries (Miss Eyton and Mr. Preece) for their services during the year, which was carried.

Miss Eyton, in returning thanks, explained that she was only desirous of widely publishing the benefits of bee-keeping—an industry peculiarly well suited to agricultural labourers, and well within their reach.

Mr. Preece also suitably responded.

The usual vote of thanks to the Chairman concluded the meeting.

LANCASHIRE AND CHESHIRE BEE-KEEPERS' ASSOCIATION.

The Lancashire and Cheshire B. K. A. held their annual meeting at the 'Bear's Paw,' Lord Street, Liverpool, on Thursday, the 28th February, at 3.30 p.m., the Rev. J. F. Buckler, of Bidston Rectory, Birkenhead, in the chair.

The weather was against a full attendance of members, but amongst those present were Colonel Herne (Chester), Messrs. Wm. Broughton Carr, Desborough (Walford), W. W. Whitaker (Manchester), E. G. Parker (Altrincham), W. E. Little (Chester), Wm. Liddell (Lancaster), J. T. Astley (Roby), Geo. Roberts (Broad Green), R. Bennett (Halewood), Wm. Tyrer (Prescot). There were several letters from parties at a distance, regretting their inability to attend.

After the minutes of the last annual meeting had been read and confirmed, the chairman called on the hon. sec. Mr. W. Lees McClure (with a view to making the rest of the business of the meeting more simple) to explain as far as possible what had passed with reference to County Associations at the B. B. K. A. annual meeting.

The hon. sec. mentioned that through the kindness of Mr. Huckle he had received a rough copy of the amended Rules of Affiliation, which he thought would be a great

help to County Associations in general. He also mentioned the propositions of the Baroness Burdett-Coutts; and it was unanimously agreed to ask the Committee of the L. & C. B. K. A., at their first meeting, to draw up a letter to the Committee of the B. B. K. A., asking them to take action on the Baroness's suggestion—*re* a bee department at the proposed Agricultural College, but deprecating her idea of having bees on grounds connected with the unions, as accidents would almost be sure to follow through some one weak in body or mind getting nervous or interfering with them. With reference to the sale of honey it was pointed out that the Wholesale Co-operative Society, with all the retail establishments they are in communication with, was the most likely outlet for bee-keepers to use for honey they wanted to sell.

On the motion of the Chairman, who made feeling allusion to the death of Mr. Raitt, the Report and Balance-sheet, which were read by the Secretary and Treasurer, were adopted, with thanks to Mr. Bally, the auditor.

A vote of thanks to the Committee and Officers of the Association was unanimously passed, the Hon. Secretary's endeavours to make the Association a success being specially alluded to. Officers for the year 1889 were appointed, and the two counties divided into twenty-eight districts, with an Hon. Local Sec. at the head of each. The Committee were empowered to appoint a paid Assistant Secretary and to arrange for all the members' bees (if desired) to be visited this spring.

How do Bees Breathe?—Instead of lungs, bees have what is called a 'tracheal system.' They receive the outside air through openings in the body called spiracles. Adult bees have fourteen of these openings. The spiracles open into large sacs, from which branch out the tubes. The blood does not receive the oxygen from lungs, and hence these air-tubes must perform this life-giving function. Every part, every member, however small, however delicate, must be reached by these breathing tubes. Bees breathe with a regular motion, but instead of an expanding and contracting of the chest, it is a lengthening and shortening of the abdomen. Watch a tired bee stop at the entrance before going in, and you will see it pant like a tired horse. Take a good-sized pill-box, and fill it half full of wax. Catch a worker, and kill it with ether, chloroform, or alcohol, and permit the killing fluid to evaporate. With a hair-pin, heated over a lamp, make a little bath of melted wax in a convenient spot in the pill-box, and having clipped off the wings and legs of the bee, drop it on its back in the little bath aforesaid. The bee should not be more than half immersed in the wax, which is then allowed to cool. When cold, which will be in about a minute, pour water over the bee until it is covered. In a good light—say, sunlight—with a needle knife, and a fine needle inserted in another match, go to work, and cut away the under part of the rings of the abdomen, and carefully lift them off. If you have good eyesight, or if not, by aid of a cheap lens (magnifying glass) of good construction, you will be astonished at the sight before you. There lie the honey-sac, digesting stomach, bile-tubes, and intestines. Running in all directions, but starting from the sides, you will note fine white tubes branching out into smaller, and these organs into still smaller, until lost to sight. These are the air-tubes I have been talking about, and you will note that they not only encircle the digesting stomach, but are wound round the other parts in sight. If your lens be strong enough, and you have not ruptured it in your dissection, you may find the nerve system. You will find it composed of two 'cords,' almost transparent, with occasional bulgings, in which the two 'cords' are joined. In and about this very nerve system you will find the fine breathing tubes before spoken of. Up into the compound eye, with its thousands of lenses, run other breathing tubes.—J. Aspinwall (*American Bee Journal*).

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 2nd page of Advertisements).*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

COMBS AND FOUL BROOD.

[2015.] In a recent number of the *Bee Journal*—I cannot call to mind exactly which one—mention was very properly made that healthy stocks would most likely, during the coming season, become infected by the use of combs from dead stocks which had suffered from this malady. The number of dead (starved) colonies, both skeps and frame-hives, is really appalling; from every quarter the same tale: 'Five out of six dead;' 'All dead;' 'Two out of three,' and so on. As a consequence there will be a large number of unoccupied combs at the disposal of the apiarist, who may purchase or have them given to him; these, in many cases, will sure to be from infected colonies, as these, in most instances, will be the first to succumb. The advice given to detect such infected combs was that many cells would be found uncapped, others with ragged edges. This latter advice is not to be depended upon in the majority of instances. Stocks even badly affected with foul brood will usually in autumn to all appearances clean up their combs, remove cappings, and make them look equal to those from healthy colonies. A few uncapped cells will sometimes be found in combs even from healthy colonies, so that uncapped cells in combs from colonies which have died during the winter are not an evidence of foul brood. Ragged edges to combs will always be found in early spring where honey has been removed from the cells.

It should be remembered that larvæ which have died in the cells from 'foul brood' before capping over are allowed to remain, and after some time dry up, becoming, I might almost term it, amalgamated with the cocoons of preceding larvæ; hence an infected colony will always have a number of these mummified larvæ lying in the cells, yet invisible to the naked eye. Now, to renovate or bring back any such desiccated tissue to its (almost) original form requires but the application, in a proper manner, of moisture. This being so, we have only to immerse the suspected combs for six hours in warm water, and such larvæ will show themselves in the cells they occupy, but, mind, in rather an attenuated condition.

To do this procure a box of sufficient size that will hold water; it can be made watertight by running molten wax in the angles; place the suspected combs, upright as in a hive, in same, and fix them thus by nailing a strip of wood across to each side of box. Then get some boiling water; add to this about four ounces of Calvert's carbolic acid No. 5, and well stir. Now allow it to cool down to about 110° Fahr. When this degree is reached—it can be known by its being rather warm, but not uncomfortably so, to the hand—the solution must be poured *very gradually* into the box; as it rises it will fill most of the cells. Allow it to stand about six hours, when the combs will be ready for examination. The carbolic acid is simply used to prevent infection. Chilled brood is usually removed by the bees, so that if any larvæ are found, it may be relied upon that they

have died from 'foul brood.' The larvæ will be found to be almost shapeless and of a yellowish-white colour.

Excluder Zinc.—'Beeswing' (1977) is in trouble with his excluder zinc, finding dead bees which he thinks have injured themselves in getting through. These bees have died in the hive, the occupants of same being prevented from carrying them out by the excluder zinc being placed on wrong side up. The holes in the zinc being made with punches, they leave a burr on one side; this burr should always be towards the entrance of the hive; if placed from the entrance they act as a trap, catching the articulatious of the dead bees, and preventing their being withdrawn.—W. B. Webster.

WINTERING, &c.

[2016.] One day last week, the weather being fine and comparatively mild, I inspected my stocks, and was glad to find them all in excellent condition—strong, ready to show signs of flight, and with plenty of sealed stores. I wish that every bee-keeper in our land could give a similar report, but fear that it will be far otherwise; one of my parishioners has lost all his stocks, and I expect that others will do so unless they pay a little more attention to them. My method of wintering is—porous quilts, but with an *abundance* of covering above them, passages cut in the combs, frames separated at each end by pieces of cork half an inch in width (thereby giving the bees space to cluster in, and closing the vacuums at the ends of the frames, which Mr. Abbott rightly condemns), and very narrow entrances. This keeps the bees dry and warm, and I never have wet floor-boards or damp quilts (except by an accidental leakage in the roof or side of a hive), and very seldom see more than a very small number of dead on the floor-boards. The main desiderata for successful wintering seem to me to be a good supply of available sealed stores, and a sufficient thickness of coverings to prevent *all* upward ventilation. When, many years ago, I first kept bees in frame-hives, I was much troubled with damp quilts; but one day, happening to notice my cellar door streaming with moisture on the inner side, occasioned of course by the difference of temperature on either side, I instantly thought that this explained the dampness of the quilts, and experiments have proved that this was correct. The greater the heat in the hive the thicker the covering required, but with a sufficient thickness all is kept dry. Of course there must be ventilation in the roof, but not from or above the frames. I observe that my porous quilts are thickly propolised between the frames; this is another heat-preservative.

In the early spring I change the porous quilts for non-porous ones, and, removing the separators of cork, reduce the space between the frames to a quarter of an inch—an important point (I think), preventing drone-breeding, and compelling the bees to store honey above, rather than in, the brood-chamber. I find that cork cut into small pieces is better than cork-dust for the surface of water reservoirs; a row of old paint-tins, inclined at an angle of 45°, in a sheltered spot, answers well; they are easily filled, and if the surface of the water in them be covered with small pieces of cork, scarcely a bee during a whole season will be drowned, although they are frequented from morning to night.

Another hint may be of service to some readers, viz., if syrup be spilled on the ground or elsewhere in the apiary, sprinkling a little earth upon the spot will prevent all tendency to rob from it. It is curious to observe that even where syrup has been rather thickly spilled, and then sprinkled with earth, flies will settle down upon it, and sometimes will remain there for many hours, but no bees. This, at least, has been my experience, and I have found it a considerable convenience when having to feed largely with syrup, for one can hardly help sometimes spilling some. Dry earth is the best to use, but damp will do.—A Sussex Rector.

JOTTINGS BY WOODLEIGH.

[2017.] *Chloroform in the Apiary.*—The article of Mr. Kirby (page 68) only deals with one colony of bees that had been subjected to the stupefying effects of chloroform as a preventative of swarming; possibly that particular colony would not have swarmed if the anæsthetic had not been administered to it at all, so that his deduction must be received with caution. If friend Kirby had experimented with a large number of colonies, and it had effaced the swarming fever from the whole apiary, we should have considered his experiment conclusive and a grand addition to our apicultural knowledge. In the matter of uniting I have known its value many years, and bee-keepers who live near me never destroy their bees with sulphur, but administer chloroform to the colonies they intend taking up, and then place those they intend to stand on the stools over the stupefied bees, when they unite without any fighting. This proves what Mr. Kirby says as to moving bees about the apiary. I have never known it used in queen introduction, though I think it a feasible suggestion.

If the theory of 'the survival of the fittest' has ever been applied to bees, it surely has been in seasons similar to 1888, yet if we look at the matter from two or three different standpoints we shall soon see how theory melts into thin air when put to the practical test. In the first place, bee-keeping to be profitable must be carried out on strict commercial principles, *i.e.*, to get the utmost amount of labour out of the labourer at the bare living wage. So in bee-keeping we stimulate the bees in early spring by artificial methods, such as uncapping stores, &c., to induce an extraordinary large deposit of eggs by the queen, so that our hive may teem with a redundant population of young robust bees, ready to take the field on the first flow of honey, which in 1888 never came; that great teeming mass of labourers simply existed their allotted time and then dropped off, having made no store for the future requirements of the colony. Here we have a colony that gave great promise in the spring, in the 'fittest form,' though to reach that condition a heavy draught had been put on the ovaries of the queen, also every bit of stored food had been exhausted in providing for the requirements of such a numerous progeny. The result in a season like 1888 was that, that fit colony did not survive—on the other hand, a strain of bees not noted for extra prolificness but an easy-going, jog-trot strain, that has not been stimulated, that has abundant stores perhaps candied with old age, and that has therefore a contracted brood-nest circumscribing the ovipositing of the queen to a small area; and though the colony may have no help from the bee-keeper they are in a position to exist through a wet, honeyless summer on the reserve stores and what little they may gather on the few favourable opportunities that are sure to occur during the wettest season, with the almost certainty of pulling through the winter following, thus surviving, though of a second or third rate strain from a bee-keeper's point of view, while the best, *i.e.*, '*fittest*,' has succumbed to their superlative qualities—which is 'the fittest?'

I was sorry when I perused the schedule of 'Royal Show' to see that no prizes were offered for wax specially, though I could see there was a chance of exhibiting it in Class 22; but after the wax exhibits at Nottingham Show in 1888 I was surprised at the omission of the class. I called attention to bees-wax as a secondary product of the apiary in a 'jotting' page 558, vol. xvi., some time before the schedule was published at the back of *B. B. J.*

Bee nests—high *v.* low, in a state of nature. This is evidently a case of necessity, as there are few hollows in trees near the ground. It generally happens that hollows in trees are found where a fair-sized branch has been cut off at some previous time and rot has taken place from the percolations of water into the tree, because the bark has not grown over the place of dismemberment. In buildings, again, there are few cavities in which bees

can exist except parts of the roof, or under weather tiling. I know of one colony of bees inhabiting a hollow in a tree about twenty-four inches from the ground, and I hope yet to get a section of that tree into my apiary as a natural bee nest; but, generally speaking, the usual haunts of bees in the roofs are not from choice, but, as I said before, of necessity. At a neighbouring church, some two or three years back, a swarm of bees took possession on a Saturday, and no service could be held on the Sunday. The Rector wrote me to go and *drive* them out, but on the Monday when I attended death had decimated their numbers, and the seats under the windows were covered by dead and dying bees, so that the brush and dust-pan were the only articles required to make a clean sweep of the intruders.

I notice Mr. Webster in his 'Olla Podrida,' page 89, says, *re* enamel cloths, that of sixteen opinions (omitting Mr. A. I. Root's opinion) of advanced bee-keepers as given in *Gleanings*, February 1st, that ten are for non-porous covers for frames during winter. Now I glean from *Gleanings* that the seventeen opinions as stated should be classed as follows:—Messrs. Viallon, L. C. Root, Hasty and Green (four only) use enamel cloth; Messrs. Boardman, Grimm, and Heddon, board covers; Messrs. Muth and Dadant, Dr. Mason, Messrs. Harrison, Doolittle, Poppleton, and Elwood, Dr. Miller and A. I. Root, use porous material such as woollen material, burlap sawdust, or chaff cushions. Prof. Cook remains neutral, stating that it makes no difference if the bees are properly prepared for winter.

Apropos of Mr. Webster's note on winter passages, I beg to endorse all he says on the subject, and would impress on bee-keepers the importance of acting up to it. The American bee-keepers largely use 'Hill's device' over the frames. It is made of four pieces of half-inch wood, eight inches long, sawed on a curve and held together by a piece of hoop iron nailed across the top, thus giving the bees passage way over the tops of the frames during cold weather; and if they are well provided with stores and wrapped up carefully to prevent any upward draught they will be in the best possible condition to pass the winter safely. Mr. A. I. Root, in his *A. B. C.*, states that he wintered 200 colonies with 'Hill's device' almost without loss; and in following paragraph in *A. B. C.*, he says, 'It is now April 16th, 1884, and we have during the past winter carried 160 colonies through the winter with a loss of only two. They were on natural stores, in chaff hives, with Hill's device over the combs.' Practical results like these, to which may be added Mr. Hill's uniform success in wintering during the past twenty years, speaks volumes to the inexperienced of the great necessity of winter passages being provided for the bees in bar-frame hives, especially in these days of comb foundation.—WOODLEIGH.

THE ANCIENT USE OF HONEY.

[2018.] There is a reference as to the use of honey in the third book of Moses—Leviticus, ii. 11 and 12: 'No meat offering which ye shall bring unto the Lord shall be made with leaven; for ye shall burn no leaven, nor any *honey*, in any offering of the Lord made by fire. As for the oblation of the first fruits, ye shall offer them unto the Lord: but they shall not be burnt on the altar for a sweet savour.'

The following remarks are copied from *Faiths of the World*, by the Rev. James Gardner, M.A.:—

'HONEY.—The Jews were forbidden, in Lev. ii. 11, to mingle honey in any burnt-offering made by fire; at the same time they were commanded to present the first fruits of their honey, these being intended for the support of the priests, and not to be used in sacrifices. The Jewish doctors allege that the honey here referred to was not the honey made by bees, but a sweet syrup procured from ripe dates. The reason why it was forbidden as an ingredient of the Jewish sacrifices is probably to be found in the circumstance that it was used by the heathen. It was employed in the preparation of ordinary beverages, both among the Greeks and Romans, and it also formed an ingredient in sacrifices to many of their gods, besides constituting an important part in offerings to the dead. At this day the Russians place near the grave a dish into which honey enters as an ingredient, and the Estonians a clay vessel full of honeyed drink. Herodotus mentions it in describing the sacrifice of an ox to the Egyptian goddess Isis.

'Among the early Christians, it was customary to give to the newly-baptized a small portion of milk and honey, to signify, as Jerome and Tertullian allege, that they were now as children adopted into God's family. From the third council of Carthage it appears that this milk and honey had a peculiar consecration distinct from the eucharist. It is said in the canons of that council to be offered at the altar on a most solemn day, and there to have its proper benediction, for the mystery of infants, that is for the baptized, who are considered to be new-born babes, in a spiritual sense.'

It appears from the above that some doubt is thrown out as to whether the honey mentioned is that made by the bees, or a syrup made from ripe dates. Both honey and honey-comb are referred to on so many occasions in Old Testament that it is difficult to understand that the honey mentioned is not that collected by the bees. Perhaps some of your readers can give some further remarks on this subject.—JOHN M. HOOKER.

MODERN BAR-FRAME HIVE.

[2019.] Although we are all very much indebted to Mr. 'Useful Hints' for the most excellent advice he gives us, yet there are a few things on which I can scarcely agree with him. In my article (1975, p. 57) I wished to call the attention of the compilers of *Modern Bee-keeping* to the measures given sideways, as they differed very much from most modern bar-frame hives, from the original Standard type, 'Woodbury,' and in my experience in practice are inexpedient. In the latest edition dummies are not mentioned in the description of the building of the hive, but are afterwards mentioned as *refinements*. In the edition dated 1882, p. 21, it goes so far as to say 15½ *inches square* for ten bars without dummies.

Now Mr. 'Useful Hints' virtually acknowledges (p. 74) that with metal ends ¼ inch space is allowed at the sides. The Langstroth broad-shouldered frames also allow the ¼ inch. More than this, in a hive (Combination) I purchased of Messrs. Abbott (the parents of their broad-shouldered frame) ¼ inch only was allowed. Most of my hives were originally 'Woodbury,' 14½ inches square, and were altered when the 'Standard' frame was introduced; and in them only ¼ inch was and is allowed at the sides. I have one of Neighbour's hives, and the same distance is allowed in it. I have also measured a Cowan hive for ten bars, and it also was 14½ inches square. As far as comb foundation is concerned I only place it in the brood nest, reserving old comb for the sides, which the bees never fail to fill and seal properly *both sides*. I used to have hives allowing ½ inch distance at the sides, in which I experienced great difficulty owing to comb thickening on the part of the bees; and when I had occasion to change the positions of the frames I found it practically impossible to do so without paring the comb; and if this were done when the combs had sealed honey, I leave you to imagine the mess, to say nothing of the inducements to rob. *Apropos* of Carson's black paint, I quite agree with Woodleigh's arguments, to say nothing of their funereal appearance in a garden. I find a good coat of paint every year (preferably stone colour) keeps the hives perfectly dry.—JERSEY BEE-KEEPER.

CHEAP HONEY.

[2020.] If the County Associations would undertake the sale of pure English honey upon a commission sufficient to cover only the expenses, there would be a chance of bee-keepers again getting fair prices for their honey, as the retail prices are even now almost as high as they ever were. This could easily be done by the Associations laying themselves open to receive orders, which they would find literally pour in, as most persons would order from the Associations in preference to from a shopkeeper. A stock of honey could be kept by the Association; or, instead, a register of the bee-keepers having honey for sale.

It is unnecessary to go into further details, the above being sufficient for you to grasp the idea, which I venture to think if carried out would improve the position of the Associations, and at the same time give a fresh stimulus to the bee-keeping industry.—J. T. PATTISON, *Woodford, Essex.*

BLACK HIVE-COVERS.

[2021.] Can it be that with black hive covers 'Useful Hints' has neither melted combs nor overheated hives? It is clear either he or scientists are wrong in this matter. The latter tell us that white or light-coloured clothing is coolest in summer and warmest in winter, as black rapidly diffuses the heat of the body in winter. Again, in the matter of the bright metal and black earthenware teapots. Place them side by side on the tea-tray, and fill them with boiling water, and it will be found that the blackjack will so rapidly diffuse the heat that it will be cold in half the time it takes to cool the other. It would be useful as well as interesting if some of the scientific readers of the *B.B.J.* would decide the matter of black or white hive-covers, for the reasons above given. I always use white or stone colour summer and winter, believing black too rapidly diffuses the heat of the hive in winter, whilst the only time I ever used it in summer I paid for it with melted combs.—J. ROBINSON, *Bury St. Edmunds.*

A CORRECTION.

[2022.] Writing about the wax exhibited at the Crystal Palace show in August last, Dr. Bartrum describes the eighteen samples as English wax. Permit me, as the first prize-winner for *British wax* on that occasion, to state it was the produce from my own apiary at Lint Mill, Glenluce, Scotland.—JOHN D. MCNALLY.

WIDE ENTRANCES.

[2023.] I read with pleasure our old friend C. N. Abbott's letter in a late issue. He is an undoubted pioneer, and much too shrewd to give his opinion without having previously well thought out the subject.

Let us consider for a moment the construction of a good hive. The walls are double, the intervening space often packed with a non-conducting material, the floor-board thick, and fitting air-tight. The bars covered with folds of warm quilt, and perhaps a chaff-cushion, and every crevice closed tight by the occupants. All this to keep the interior warm. Surely such elaborate precautions must be thrown away when we allow such a fine space for air to circulate through. I suppose it is fondly imagined that the cold air will not ascend. Every day there is more or less wind—a very little setting up a rapid circulation. To form some idea of this—close the door of a warm room on a cold day, even when there is no wind whatever; open the window a corresponding proportional area to the hive entrance, and notice how soon the thermometer will fall, and what a much larger fire you will require to keep up a given heat. If we must have wide entries we can dispense with all packing, good fitting, &c., because they will really be of little use. A hive with a wide entrance *must* be colder than one with a narrow. The cluster cannot live below a certain temperature, and to defend from cold those bees on its exterior, there must be more heat radiated. This means more food consumed, extra wear and tear of many little stomachs, less repose, &c. My own experience points towards narrow entrances, having wintered some very small clusters in spaces much too large for them, but in thoroughly well-made hives with any amount of packing, sometimes with entries reduced to less than $\frac{3}{8}$ of an inch square, and a draught excluder in front, the floor-boards remaining perfectly dry. It almost seemed that the hives were too warm to allow of condensation.—FRANK SEARCH.

HIVE WITH SHALLOW FRAMES.

[2024.] Having been a constant reader of the *British Bee Journal* for last three years, I am anxious to find out through it as a medium whether any of its readers ever tried for comb honey shallow frames in the brood-chamber. I am a bee-keeper of nine years' standing, and I have managed to take in comb honey—I only work for comb honey—a fair average per hive every year, excepting last, which with me, as with most bee-keepers, was a complete failure. I am inclined, however, to think that with shallow frames the average yield might be materially increased. Using frames of 8 in. in depth, I find that during the honey-flow, and whilst the queen is laying abundantly, the brood-nest gets invariably contracted in depth by 2 in. or so, and in many cases much more, being filled and sealed over, while little or nothing is going into the supers. I am aware that there must of necessity be a supply of food ready for use immediately above the brood, but I am of opinion that with the use of shallow frames, instead of having it in the brood-chamber, the 2 inches or so might all, or nearly all, be stored in supers. I would not decrease the superficial contents of brood-comb, but make up for the loss in depth by increasing the number of frames, and this would give at same time a larger surface for supering. Of course to prevent the queen going into supers, and there would with shallow frames be a greater risk of her doing so, excluder zinc the whole length of hive would be used.

As a trial I have got made a hive of sixteen frames, usual length, but only 5 in. deep in place of eleven frames 8 in. deep. The hive is so constructed that for wintering purposes four frames from each side can be placed on the top of the centre eight, allowing the usual quarter inch between the tiers, thus making a rather deep hive in winter, which will, I think, suit well.

If you will kindly allow space in some early issue of your *Journal*, I shall be greatly obliged, and I may possibly find out the opinions of bee-keepers of great experience upon such a hive, and whether the plan I speak of has ever been tried; and if so, with what results.—J. S. RENWICK, *St. Leonards, Selkirk, February 15th.*

NADIRING.

[2025.] Not having noticed in the *Journal* any mention made of 'Nadir hives,' I have veutured a few remarks, thinking that they may be interesting to some of your readers. I do not lay claim to the discovery of the plan described below, but have practised it with more or less success for years, having first read of it in a pamphlet written by a Sussex bee-keeper—Mr. Pagden.

It will be well worth trying by cottagers and others who use the ordinary round-topped straw skeps without any arrangement for supering, and who often allow their

bees in the busy season to cluster or 'hang out' without attempting, in any way, to give these, then *idle* (not *busy*) bees additional space which they would gladly fill with honey.

Now for the plan. Get a common American cheese-box before the swarming season, and prepare it as follows:—Take off the top or lid, and at a convenient place, when the nails do not interfere, make a sloping trench 5 inches wide from the interior, through the rim or hoop, just deep enough at the entrance for the bees to pass through freely, and furnish the opening with an alighting-board. Through this aperture the bees will be able to carry out their dead comrades, and anything that they wish to get rid of, and they will also use it as a second and extra doorway when they are obliged, from lack of room in the hive proper, to make use of this cellar.

Having now prepared the lid (which will form the bottom when all is completed), turn up the cheese-box, and in the centre of the bottom cut a hole about 4 inches square, and over this, with small tin tacks or gimp pins, secure a square of excluder-zinc, which, of course, must be a trifle larger than the opening, and the arrangement is complete and in readiness for the first *large* swarm (the larger the better) that presents itself. Hive the bees in the usual way, set the box, topsy turvy, on a tier of bricks, and upon this pedestal place the hive. The cheese-box may be bought for 3*d.*, the excluder-zinc for 1*d.*, which will, after all, be only equal to, or perhaps less than, the outlay necessary for the purchase of a floor-board for the hive. A moderately shallow box is preferable to a very deep one. Three years ago I took from one hive in this way nearly thirty pounds of the purest honey, for the queen does not care to go below into a cooler temperature, and besides, if she did, the excluder-zinc would keep her back. It also hinders the drones from feasting upon the sweets stored in the cellar.—W. H. Burnham, *Staverton, Northants.*

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

F. Jellico.—1. *Transferring.*—It is not advisable to place the new hive above until the bees are strong in numbers and the weather fairly mild. 2. *Standard Frame.*—I have used the 'standard' frame largely in the past, and shall continue to do so in the future. The shallow frame will be a great feature in connexion with that and other sized stock frames, for securing extracted honey.—Saml. Simmins.

W. Truslove.—*Dead Bees.*—The bees sent were old bees, which had died a natural death. Your mode of packing and feeding is all that could be desired.

E. T.—*Dead Queen.*—The alimentary canal contained sugar crystals, granular matter, and some oil globules; it appeared to be in a state of decomposition and smelt badly. There was no trace of bacilli or fungi. Tracheæ appeared to be healthy though partly decomposed. Spermotheca was rather below the average size, but was filled with innumerable spermatozoa of normal appearance. The ovaries were dark in colour, the left one greatly atrophied—the right one was a little under usual size, but flaccid and apparently containing no ova except what were in a very incipient condition. The tubes did not seem injured, but were simply empty and under a high power showed a striated structure not usually so well marked in a healthy specimen. We consider the death to have been due to insufficiency of nitrogenous matter; possibly from this reason the queen produced no eggs and on that account was condemned as useless.

Enquirer.—*Heddon Hive.*—We have tried these hives and system and find them and it far inferior to our own. The English standard frame-hive is the most easily managed and profitable yet introduced.

Middlesex.—1. *To obtain information as to amount of stores in a hive at present time.*—Gently turn back the quilt and look between combs; do not move them. If found short, give candy. 2. *Prevention of Swarming.*—Run your hive on the 'tiering up' system; this is the best preventative of swarming. There is no method yet discovered for entirely preventing swarming. 3. *Drone Comb.*—We always allow a certain quantity in body of hive by inserting the drone-comb from a section in the middle of one of the frames of worker-comb. 4. *Middlesex Bee-keepers' Association.*—Yes. The subscription for ordinary members is not less than 5*s.* per annum. The President is the Baroness Burdett-Coutts. The Hon. Sec. is the Hon. and Rev. H Bligh, Hampton Hill. 5. *Dead Larvæ.*—When any quantity is thrown out of a hive it is a sure sign of shortness of stores. 6. *Artificial Pollen.*—Pollen is stored in the worker-cells the same as honey. Give the bees pea-flour in an open box near the hive. The flour is to be well sprinkled on some shavings placed in box. A few drops of honey will attract the bees to the box. This must be discontinued when they commence to carry the flour in to their hives.

D. Mosley.—*Carniolan Bees.*—1. This variety of bees is very grey in appearance. The same is specially noticeable with the young bees, who have quite a light downy covering over the body; this is very thick on thorax. When the young have been foraging some little time this greyness wears off, but the bee then has most decided silver stripes on the abdomen, as an Italian has gold coloured ones. After some time these partially disappear, when it looks almost like our English black, but can always then be identified by an expert. As a rule—there are rare exceptions—they are most amiable and will quietly bear examination, and also extensive manipulations, without the use of a subjugator. This does not apply to the manipulations of a tyro, who had better use a subjugator. If you will forward to us a few of the bees (dead) we will give an opinion as to the variety. 2. *Buying Bees.*—We cannot be expected to know the value of every article advertised in our columns. You should have made a proviso, when dealing with a stranger, that the hive should be standard size and in good condition, and the bees covering so many frames—according to time of year when purchased—and quite healthy; also that the queen should not be more than two years old. If they were sold to you as Carniolans, and they are not as represented, you can make the seller refund upon your returning the stock; but this would be a difficult matter after so long a time has elapsed since the purchase. According to your description of the stock we should conclude it was not worth keeping. You cannot do better than feed on candy for the next three weeks, then (slowly) on autumn syrup, and as soon as pollen comes in freely feed on spring syrup until fruit and horse-chestnut bloom. After cessation of this and up to the blossoming of white clover keep an eye on the stores, and if found wanting—feed.

H. F. B.—*Smoker.*—Your experience with your smoker appears to suggest that the one you have in use is either imperfect, or not properly managed by you. The best smoker is that known as the 'Bingham' smoker, which will burn for hours without going out

if fed at intervals with such materials as brown paper, rags, fustian, corduroy, peat, or decayed wood, and will eject a large volume of smoke to a distance of a couple of feet. If you determine that the smoker is the most suitable article for dominating bees, it is desirable that it should be of the best make.

J. R., *Gainsford.*—We should be able to give a reply to your question if the letter were forwarded to us. Directions for addressing us are given in the *Journal* and *Adviser*. Would you kindly take the trouble to re-write the list of names mentioned in your letter, as the first copy of them has not come to hand?

Biene.—*Bees in Greenhouse.*—1. The odours of the flowers and plants perfected in a greenhouse, at a time when the outside world is comparatively bare, will entice the bees in, and they will there indulge their natural cupidity; but when they desire to return, there is not the same odour to direct them, and as they do not understand the difference between transparent glass and the clear air, they beat themselves against the former until their strength is exhausted, and they fall to the ground in a dying state. 2. It is not desirable to place the hives *in* the house for the foregoing reasons. 3. It is a moot question whether frames should be placed at right angles or parallel to the entrance. We prefer the former. 4. There is no Bee-keepers' Association in Westmoreland, which we much regret; the cause of its absence is probably the apathy of bee-keepers there. Why not endeavour to organize a district association in your locality? 5. The subscription to Bee-keepers' Associations for cottagers is generally 2*s.* 6*d.*,—sometimes 1*s.* per annum.

Received from Mr. T. B. Blow, Welwyn, Herts, his Illustrated Catalogue of Bee-keepers' Supplies, 64 pp., with numerous illustrations.

Received from Mr. Arthur Godman, St. Stephen's, St. Albans, Herts, his Price List and Catalogue of Machinery, Metal Goods, Appliances, &c., used in Bee-keeping. 16 pp., illustrated.

BEE-KEEPING, Plain and Practical: How to Make it Pay. By A. Rusbridge, 1*s.* 6*d.*, post free, 1*s.* 8*d.* Address J. Huckle, Kings Langley, Herts. A 1253

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WINDSOR MEETING, 1889.

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CLASS 1.—For the best collection of Hives and Appliances, to consist of the following articles:—One Frame-hive, priced at 15*s.*; one ditto, priced at 10*s.* (*Note.*—These Hives must be fitted with arrangements for Storifying.) One Observatory Hive; one Hive of Straw or other material, not entirely of wood, for obtaining either Comb or Extracted Honey; one pair of Section Crates fitted with Sections; one Extractor, one slow stimulating Feeder, one rapid Feeder; one Smoker or other Instrument for quieting Bees; one Veil, one Swarm Box for travelling, capable of being used as a Nucleus Hive; one Travelling Crate for Comb Honey; five other distinct articles not specified at the discretion of the Exhibitor. Each article to be priced separately. No articles must be added to the collection, nor any portion of the Exhibit removed during the Show. First Prize, 40*s.*; second Prize, 30*s.*

CLASS 2.—For the best Observatory Hive stocked with Foreign Bees and Queen. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 3.—For the best and most complete Frame-hive for general use, unpainted. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 4.—For the best and most complete Frame-hive for general use. The Hive shall consist of (1) a Floor-board on four short legs; two Chambers or Body-boxes, equal in size, similar and interchangeable, both to have porches, with entrances not less than 12 in. wide, that can be contracted at pleasure, each chamber to be capable of holding at least ten Standard Frames, but only one set of Frames with strips of foundation fixed and two division-boards to be supplied. (2) One Case of $4\frac{1}{4}$ by $4\frac{1}{4}$ Sections, with foundation fixed and separators, of such size as to admit of its being placed inside the chamber. (3) A substantial Roof, sufficiently deep to cover a case of sections and afford ample protection to the whole Hive, the price of each part, namely, stand and floor-board, body-box, case of sections, and roof, to be given separately, the whole not to exceed 15*s.*, unpainted. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 5.—For the best and most complete Frame Hive for general uses. The Hive shall consist of (1) one Chamber or body-box, containing ten Standard Frames having strips of foundation fixed, two division boards, entrance porch, and floor-board, the chamber capable of being used with a second of the same pattern. (2) One Case of twenty-one Sections, $4\frac{1}{4}$ by $4\frac{1}{4}$, with foundation fixed and separators. (3) A Roof sufficiently deep to cover one case of sections at least, the price of each part, namely, floor-board, body-box, case of sections, and roof to be given separately, the whole not to exceed 10*s.* 6*d.*, unpainted. First Prize, 20*s.*; second Prize, 15*s.*; third Prize, 10*s.*

CLASS 6.—For the best Honey Extractor, price to be taken into consideration. First Prize, 15*s.*; second Prize, 10*s.*

CLASS 7.—For the best Honey Extractor, price not to exceed 12*s.* 6*d.* First Prize, 15*s.*; second Prize, 10*s.*

CLASS 8.—For the best pair of Section Racks, completely fitted for use and interchangeable, price not to exceed 3*s.* 6*d.* each. First Prize, 15*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 9.—For the best Feeder for slow stimulating feeding. First Prize, 10*s.*; second Prize, 5*s.*

CLASS 10.—For the best Feeder for quick autumn feeding, capable of holding at least 5 lbs. of food at a time. First Prize, 10*s.*; second Prize, 5*s.*

CLASS 11.—For the best Smoker. First prize, 10*s.* second Prize, 5*s.*

CLASS 12.—For Useful Inventions introduced since 1887. Special Prizes according to merit.

CLASS 13.—For the best 12 Sections of Comb Honey, the gross weight to approximate 24 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 14.—For the best 12 Sections of Comb Honey, the gross weight to approximate 12 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 15.—For the best 6 Sections of Comb Honey, the gross weight to approximate 6 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 16.—For the best Exhibit of Run or Extracted Honey in jars, not exceeding 2 lbs. each, the gross weight to approximate 24 lbs. First Prize, 30*s.*; second Prize, 20*s.*; third Prize, 10*s.*; fourth Prize, 5*s.*

CLASS 17.—For the best Exhibit of Heather Honey (Comb or Extracted), the gross weight to approximate 12 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 18.—For the best Exhibit of Granulated Honey in jars, not exceeding 2 lbs. each, the gross weight to approximate 12 lbs. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

CLASS 19.—For the best Exhibit of Comb and Extracted Honey, in any form, staged on space 4 ft. by 4 ft., height not to exceed 5 ft. above the table. The gross weight of each kind to be stated. First Prize, 60*s.*; second Prize, 40*s.*; third Prize, 20*s.*

The Exhibits in this class to be staged by the Exhibitor.

[A Silver Medal, independently of Money Prizes, will be given for the Exhibit most tastefully arranged.]

CLASS 20.—For the best plan and design for an Apiary of 50 Hives on two or more acres of land, to include a suitable building for extracting and general work. The design to show arrangements for growing Honey- and Pollen-producing plants, attention being given to the value of the crops for other purposes. First Prize, 40*s.* and Silver Medal; second Prize, 20*s.* and Bronze Medal.

CLASS 21.—For the best Diagrams suitable for a Lecture on Bee-keeping, or Technical Lessons in Rural Schools. First Prize, 40*s.* and Silver Medal; second Prize, 20*s.* and Bronze Medal.

CLASS 22.—For the most interesting and instructive Exhibit of any kind connected with Bee-culture not mentioned in the foregoing Classes. First Prize, 20*s.*; second Prize, 10*s.*; third Prize, 5*s.*

The Council reserve to themselves the right to publish for Educational purposes any Exhibit entered in Class 20 and 21.

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Editorial, Notices, &c.

DECENTRALISATION.

Now that the B.B.K.A. have issued their fiat that each affiliated County Association may elect one member who shall have a seat and voting power on the Committee of the Central Association, it were well for all members of bee-keeping societies in the kingdom to accept the fact, no matter what their previous opinions were as to the wisdom, or otherwise, of such an important step. We should look the matter fairly in the face, quite dispassionately, and see if the presence of these representatives on the board of management may not be turned to good account, bringing, as they will, important facts relating to the growth of the science of modern bee-keeping fresh from their constituents, in return being able to communicate to the County and District Associations much valuable information obtained at headquarters. Parents and offspring will thus be kept in constant touch of each other, in such cases where a representative is able to attend the deliberations of the central body—the nucleus and germ of the whole family of British bee-keepers. As heat radiates from its source, and as the centrifugal action of the honey extractor dissipates the rich treasures of the hive, so we think these representing media may prove to be conductors of much valuable information for the good of the bee-keeping fraternity at large. Let us frankly acknowledge at first that the spirit of centralisation means, in plain terms, ultimate congestion and contraction. The cutting adrift of colonies when they grow too big to be governed from home, resulting, we imagine, in ultimate weakness in the parent, is certainly, we must admit, a species of decentralisation, but it has an irrationality of its own about it which possibly would have seriously affected the B.B.K.A. had its members turned a deaf ear to the wants of the County Associations. The truest means of acquiring future strength and greatness is, in our opinion, by adopting some similar system of federation as the one under consideration; and we make any political reader a present of the analogy. The B.B.K.A. have done a wise act, which, in all likelihood, will result in a still greater measure of usefulness than in the past.

It now becomes our duty to offer some words of advice to the affiliated societies in counties, now that by their agitation they have obtained such an important measure of power on the Central Committee, conceded by the members of the B.B.K.A. at their recent annual meeting. Let the counties try how much they can strengthen the hands of the central body by instructing their delegates as to the best means of promoting bee-keeping, especially scientific bee-keeping, in their own particular county—for each county varies in its requirements. These particular requirements can then be discussed at the Quarterly Conferences, when much assisting advice will in all probability be forthcoming from such a concourse of selected experienced bee-keepers. The ebb and flow of communication between the Central and the County Committees must thus be of valuable service to the craft. It next becomes the duty of the County Associations to at once give a seat on their own committee to the secretary or other representative of each district association in their county; by this means they are made acquainted with the progress of the art in its various ramifications. Several counties have already taken this step with the most felicitous results, but if all of them create these ties of union with their distant offshoots we shall shortly find a complete harmonious chord reaching through the whole rank of bee-keepers who have organized themselves for mutual help and advice and permeating the whole kingdom with links of friendly communication.

Every society ought, in the first place, to consider its *raison d'être* to be the *spreading* of benefits amongst its supporters, and 'decentralisation' should be its motto and watchword. Thus we get a nucleus which gathers substance from its surroundings, only to organize it and enable it to bud out as a perfected offshoot, these offshoots themselves acting as healthy nuclei, the parents of other organized bodies. Here is a line which should be rigorously followed by our County B.K.A. Their help, financially and otherwise, should be cordially given to the B.B.K.A., whilst the district associations in the same ratio sustain the counties. We think it only a question of time, of steady, patient plodding, and we shall have the gratifying sight of our land being reticulated with well-governed bee societies united by a common bond of brotherhood, cemented together by mutual advantages. Little patience have we with those birds of ill omen who are constantly croaking about 'our work being done.'

SCOTCH BEE-KEEPING AND THE *JOURNAL*.

Bee-keeping has been known and practised successfully in Scotland from time immemorial. It is to our forefathers that those of the present time are indebted for their valuable teachings. Within the last few years we have lost some of our ablest bee-masters, but our ranks have increased tenfold in the same time. It is now thirteen years since I owned a single stock of bees, and during that time I have been indebted to the *Journal* for many valuable hints. In response to our worthy Editor, who has asked me to reply to Scotch queries, bee-keepers are indebted to him for his great and varied teachings in bee-culture. Though not a stranger in writing to the *Journal*, it is perhaps necessary at this time that I should 'make my bow' and state briefly what system—if I may term it—I intend to pursue. For a number of years 'bee-keeping as a paying business' and 'the production of honey' has been my specialty. To this I shall still adhere. Without any affectation on my part to plead 'inability' I prefer to be known by my fruits, and stand or fall accordingly. Being a practical worker in wood, I shall do my utmost to assist all who may require my opinion on hive-making, honey-houses, bee-houses, value of timber, and its different uses in the apiary. It is to be hoped that Scotch apiarians will assist beginners in the art of bee-keeping by taking an interest in writing to the *Journal*.

W. McNALLY.

OBITUARY.

We are sorry to have to announce the death of the Rev. John George Wood, M.A., F.L.S., which took place at Coventry, where he was on a visit. Mr. Wood is well known to all as a naturalist, and has probably done more to popularise the study of natural history than any other writer. He was born in 1827, educated at Ashbourn Grammar School, and in 1844 he entered Merton College, Oxford. He graduated B.A. in 1848 and M.A. in 1851, and for two years he was attached to the Anatomical Museum at Christ Church, Oxford. He was ordained in 1852 as Chaplain to the Boatmen's Floating Chapel, and after four years was appointed Assistant Chaplain to St. Bartholomew's Hospital. For some time he held the office of Precentor of the Canterbury Diocesan Choral Union. Mr. Wood was a great writer, and in most of the magazines articles will be found from his pen. Many of the works are specially adapted for the instruction of the young. *Sketches and Anecdotes of Animal Life, The Boy's Own Natural History Book, A Popular Natural History*, and *My Feathered Friends, or Bird Life*, are amongst them. Then he wrote a number of small books on 'common' objects, such as *Common Objects of the Sea-shore, Common Objects of the Country, Common Objects of the Microscope*, and many others. He also wrote frequently about bees, and a shilling book of his—*Bees, their Habits, Management, and Treatment*—had a considerable sale. His most important book was his larger *Natural History* in three volumes; *Homes without Hands* and *Insects at Home* are amongst some of his most popular works. For some time he edited the *Boy's Own Magazine*. He was an able lecturer, and prepared all his own illustrations in coloured pastels on large canvas. Mr. Wood died from an attack of peritonitis. We are sure that he has left a wide circle of students and admirers of the works of Nature as the result of his able and interesting style of writing.

USEFUL HINTS.

The first week in March has brought severe frost and deep snow. The thermometer has been down to 15° F., which means 17° of frost, and the bees have been more closely confined to their hives than they were in mid-winter.

The frost and snow have departed in the midst of heavy rain. Taunton, we read, is submerged, and the Midlands present the appearance of an inland sea in this month of March, when we expect drying winds and the proverbial peck of dust.

Late winters, when we are looking for genial spring, with its gentle zephyrs, often prove disastrous to bees. Colonies with reduced numbers and prolific, vigorous queens have been making efforts to re-populate the hives, and now severe cold has compelled them to contract the brood-nest and desert a portion of their progeny.

It will not be surprising, therefore, if, on the departure of severe weather, some colonies which had appeared prosperous hitherto are found in straits, especially if short of food, and others, we fear, will be found defunct. To those which are strong in numbers, having sufficient wholesome food, this check may prove advantageous, and a late spring may be productive of more honey than an early one. At all events, we have to wait for the time when—

> 'The yellow bees the air with music fill,
> And finches carol, and the turtles bill.'

OLD COMBS from dead colonies will be plentiful, we apprehend, at this season; but we do not advocate the use of combs heavy with pollen and dark from age. A swarm will work to far greater advantage on comb-foundation than on such combs. But combs of from one to three years old may be used with advantage when containing a moderate quantity of pollen. The frames of such combs should be thoroughly well scraped, and the combs syringed or sprayed with carbolic acid solution. For this purpose we recommend a mixture of one part of Calvert's No. 5 carbolic acid to nine parts of water. The water should be warm when mixed, and the addition of a little glycerine will render the solution more effectual. Hives also which have been in use should be well scraped and disinfected. For throwing the spray an 'atomizer' is preferred by many, but an ordinary brass syringe, having a fine rose, which may be purchased for sixpence, will answer all purposes equally well and will last longer. Combs and hives must be well dried, and stored in a dry place ready for use when required. This is work which admits of no delay, otherwise the combs will deteriorate. Combs containing old and dried pollen and dead bees may be soaked in warm water and passed through the extractor, when they will be found to have been relieved of the greater part of their burden.

BAD SEASONS.—The Rev. P. V. M. Filleul, in a former edition of his *Profitable Bee-keeping for Cottagers*, tells us that, 'Even where bees are kept they are frequently sadly mismanaged, if not utterly neglected, so that not a tenth part of the honey is harvested which might be collected. A notable instance of the waste of these good things (honey and wax) occurred in the years 1860 and 1861. It will be in the recollection of many how very wet and unpropitious the whole summer of 1860 was. It proved the very worst season for bees and honey in the memory of most bee-keepers; so much so, that not only was no honey worth mentioning collected in England, but thousands of hives perished of starvation during the winter that followed. It has been estimated that nine out of every ten hives throughout the country were lost at that time. This, I am persuaded, was under, rather than over, the mark. This destruction among the bees could easily have been averted by a little generous feeding in the autumn, at no great outlay, which would have been well repaid the following year. As it happened, the summer of 1861 was everything that could be wished.

Honey abounded in many places in unusual quantities, but, alas! where were the bees? Who can estimate the many thousands of pounds sterling which were lost to the country that year?'

In a later edition of his book the author relates that precisely the same sequel of events followed in the years 1879 and 1880, the former disastrous year being followed by one as abundant as that of 1861.

We have a perfect recollection of the periods mentioned, but do not agree with the author's estimate, the summer of 1860 being more honeyless and more disastrous to the bees than that of 1879.

But certainly an equally abundant year followed each year of famine, and we may therefore hope, arguing from analogy, that the present year will prove abundant in honey. It is to be feared, however, that we shall have to exclaim with Mr. Filleul, 'Where are the bees to gather it?'

The improved methods of apiculture, and the increased interest in bees now prevailing throughout the country, will no doubt give far better results, both in the quantity and quality, of the honey produce of 1889, than those recorded in 1861; so that we do not anticipate the high prices and the honey dearth which are already prophesied in some quarters.

The greatest loss, we fear, will be found amongst the cottagers, whose bees are literally extinct in most districts where the skep system prevails. We do not recollect so great fatality to have occurred to colonies in skeps at any former period, nor do we think that any record of so great loss as that of the past season exists. This is chiefly owing to the fact that breeding almost ceased during the ungenial summer of last year, and skep colonies in the autumn were found to consist of a mere handful of bees, with no stores laid up for winter. In many cases, also, these reduced colonies refused to take, or were unable to store up, sufficient syrup for the winter's food, and, as a natural consequence, few skep colonies have survived. Frame-hive colonies have fared better, their condition being more easily ascertained, and their disposition to swarm, and thus to reduce the numbers in the parent hive, being less than in skep colonies. Our own swarms —of which we had a considerable number—were fed from the time of hiving until their combs were fully built and stored, and all have survived the winter. But, so far as we can learn, all cottagers' swarms in our immediate neighbourhood which were not thus treated have perished, many, indeed, before the winter commenced. Such facts as these should not be allowed to fade from memory, but should prove a guide and warning for the future.

And yet if, ten years hence, similar disasters occur, how many of the bee-keepers of the next decade will profit by them? We must not, however, look into the future with too keen a gaze. 'Sufficient unto the day is the evil thereof.'

Syrup Feeding may soon take the place of candy, if the weather prove warm and bright, which we may reasonably hope will soon be the case. Syrup of the consistency of honey (sp. g. 1·350) may be prepared by dissolving seven pounds of cane sugar in three pints of water, and gently boiling for a few minutes. We prefer thick syrup to begin with at spring, and gradually to reduce the consistency as the spring advances. Professor Phin tells us that cane sugar is the best for bee food, as its composition shows that it is entirely combustible, leaving no ashes or residue, whether it be burned in the organism of the bee or the furnace of the chemist. It has a greater heat-giving power than other forms of sugar, and has a sweetening power of one hundred, while grape sugar has only one of sixty.

Earth-colonies, or colonies whose natural domicile was *sub terrâ* (under ground), we are told by Virgil, existed in olden times, and, by Mr. W. B. Webster, even in modern times, in California. That 'all animals adapt themselves to climate' is an axiom which cannot be disproved. But *because* Italian and Californian bees *sometimes* burrow under ground (*si vera est fama*), *therefore* our English hives when placed *upon* the ground will thrive better than on stands 12 inches high, does not follow; at least in accordance with our ideas of logic. Neither does a solitary instance of English bees taking possession of a tree cavity *near* the ground impress us otherwise than that 'the exception proves our rule' of higher natural location. If we mistake not, the largest quantity of honey ever obtained in this country from a given number of hives was obtained and exhibited by Mr. Cowan when his bees were located in a loft over his stable.

We read with great pleasure the letter of our old friend Mr. Scott (2010) in praise of dear old Virgil, but let us have the full 'underground' passage, of which he gives us only a part. Here it is:—

> 'Sæpe etiam effossis, si vera est fama, latebris
> Sub terra fovere larem, penitusque repertæ
> Pumicibusque cavis, exesæque arboris antro.'

(Georg. IV., v. 42–44), of which we give a simple literal translation:—'Often also, if report be true, they (the bees) have cherished their offspring in excavated retreats beneath the ground, and have been found within hollow pumice-rocks, and in the cavity of a hollow tree.' The *pumex*—generally translated pumice-stone—is a rock of volcanic origin, *i.e.*, formed from lava, porous enough to please friend Abbott as a material for hives, and well adapted as a domicile for bees in the warm climates of Ætna and Vesuvius. No wonder, then, that the bees should select it for a home in such a climate. Our Bible, too, speaks of 'honey out of the *stony rock*.' Hence we need not feel surprise that the Syrian bees are often found in the clefts of rocks in their native land. But shall we argue from such a premiss that English colonies will flourish when located in clefts of the Scotch or Derbyshire mountains? Or, again, are we quite consistent when we object to black roofs, or black outer shells for our hives? Have we not for generations covered our brains with the tall black 'steeple' hats, and (parsons, at all events) our bodies with black broadcloth; and this too in the hottest summer weather? Is not the black man located in the tropical regions of the earth, with his nude form exposed to the burning rays of the tropical sun? Why was he not created white, or stone-colour?

We have worn black hats and black clothes for many a year; we have painted our hive roofs and outer shells black for many a year; and have experienced no evil, but beneficial results. We have often been called in by neighbours to remedy the evils of melted combs in modern stone-coloured hives; and a piteous sight it is to behold the newly-built combs in a mass on the floor-boards, the poor bees perishing in their own sweets, and the nectar streaming from the hives, while our own black hives have stood secure, and we know nothing of melted combs or drowned bees. *Denique non omnes eadem mirantur amantque.* (All men, indeed, do not admire and love the same things.) Let us, then, agree to differ, and in the end we shall be no worse friends. We are all aiming at truth, but must needs seek it by different roads. Even so be it. Only be careful to give shade and ventilation to newly hived swarms placed upon wired foundation, and then we need fear no evil from metal combs and overheated hives, whatever their colour may be.

Syrian Bees.—Mr. D. A. Jones, of Beeton, Canada, writing of these bees, says, 'Their former admirers have, in a great measure, become disgusted with them, on account of their exceedingly irritable disposition. They are great breeders, the queens being wonderfully prolific, but they frequently consume all their stores in brood-rearing.'

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

Quarterly Conversazione.

After the reading by Mr. Cowan of his paper 'On the Choice of a Hive,' the following discussion took place.

The Rev. F. T. Scott asked Mr. Cowan to explain how he fixed his sloping board with the alighting-board, or whether it was fixed at all.

Mr. Hooker would like to know what difference there was between Mr. Cowan's and the Woodbury hive. Mr. Woodbury's, he believed, was a square hive in an outer case; the frames were fitted into slots along the top bar, and of course were not of the standard size. It seemed to him that Mr. Cowan's hive was constructed very much, if not entirely, on the Woodbury principle.

Mr. Andrews said that Mr. Cowan had stated nothing concerning the sort of covering he used on the top of the bars, about which information was very essential.

Mr. Cooper had seen some hives made with a hole through the bottom board, and asked whether any advantage was gained by that.

Mr. Webster and Mr. Baldwin continued the discussion, the latter submitting that Mr. Cowan did not adopt the standard frame in detail, but used it without the seventeen-inch top bar. He was under the impression that that gentleman dispensed with the long ears.

Mr. Sambels would like to know whether Mr. Cowan used what was known in America as the slatted honey-board. He would also be glad if anyone could suggest a remedy for what troubled him considerably, namely, the small brace-combs that were built under the sections to connect the under part with the top of the bar while the bees were building the sections. Mr. Cowan had said that he would allow half-inch space under the bottom of the frame, between that and the top of the floor-board. His (the speaker's) experience was that if the bees had a space too great for them to stand on the board and work, they would invariably build small brace-combs so that they might climb up more readily.

Mr. Grimshaw would like to hear opinions on the impervious quilt theory. The subject had been debated in the columns of the *Bee Journal*, and forces seemed equally divided between the advocates of impervious and non-impervious coverings. Also, it would be desirable to have Mr. Cowan's opinion on the wide and closed entrance theory. He had compared notes on wintering with a bee-keeping friend, who had kept the doors of his hives closed to within two or three bee spaces, while he (the speaker) had done exactly the reverse; yet the results in each case were equally satisfactory.

In answer to Mr. Hooker, Mr. Grimshaw explained that he had used impervious covering whilst his friend used porous material.

Mr. Andrews had been most successful with porous covering and narrow entrances.

Mr. Hooker could not accept Mr. Cowan's theory of dispensing with all methods of keeping the distances properly. He thought metal ends or wide shoulders gave the frames a great advantage over those which possessed nothing of the kind. In the case of a hive with ten frames supposing it were necessary to get at the centre frame; if there were nothing to keep the distances each frame would have to be pulled from the one next to it; while in a hive with metal ends the frame would simply be slid along and the bees not molested, or dragged limb from limb as in the other case.

Captain Campbell asked whether Mr. Cowan kept his bars across or at right angles to the entrance.

Mr. Sambels suggested for the purposes of ventilation that instead of an upright partition there should be one the whole length down the entrance; and Mr. Hooker proposed that the hive should be raised about two inches with an entrance on the floor-board, by which means there would be an inlet and outlet for the air.

After a few words from Mr. Andrews and the Chairman, Mr. Garratt said that there appeared to be nothing novel in Mr. Cowan's hive, the details of which they had all been familiar with for years. He thought, however, that as Mr. Cowan was a great authority on apiculture, and his example would very likely be largely followed, it should not go forth to the public that that meeting was prepared to recommend the disuse of the long top bar of the standard frame.

Mr. Graham asked whether there was any objection to thin zinc being used as a cover to the roof of a hive so as to render it water-tight. He had seen some excellent honey taken out of an old tiled roof hive, the space under the tiles being packed with heather; and it had occurred to him that temperature might be kept more equable by a coating of zinc and cork dust packing.

Mr. Jonas had used straw bar-frame-hives, and found them much more successful than those of wooden material, straw being better as a non-conductor than wood. He kept his hives in a bee-house.

The Chairman asked Mr. Cowan for a definition of Langstroth's 'perfect elasticity.' He thought the question of pervious or impervious covering had not yet been decided; but it was pretty generally admitted that with impervious material wide entrances were needed, and *vice versâ*. Mr. Cowan had suggested that no legs were better than legs, but he would ask whether that gentleman was not disposed to revise his opinion in favour of short legs, with an alighting-board reaching down to the ground in front. The question of broad shoulders was one which he thought amateurs would have no doubt about in their own minds. Advanced bee-keepers might do without them, but not the ordinary apiculturist. Mr. Cowan had spoken of the number of hives at shows presenting a difficulty to those who went there. That might be obviated by the schedules being arranged to restrict the number. In his own county of Essex they were instituting a class with the object of encouraging the use of the standard frame filled with honey. He would like to know from Mr. Cowan whether he thought that class would be of practical use in the county. Another method of promoting standard frames would be to encourage the use of purchased frames in classes at shows for amateur-made hives. He could see no objection to that.

Dr. Bartrum wished to hear an expression of opinion concerning moveable bottoms. Mr. Abbott's hives used to be all constructed on that principle, but his own experience was not in favour of them. An incident had occurred quite recently in Essex, which seemed entirely to confirm Mr. Cowan's views respecting broad shoulders or metal ends. An exhibitor in a small town had a magnificent show of honey, and upon being questioned assured the speaker that he never used any sort of shoulders.

Mr. Cowan, in reply to the numerous questions asked, said that the alighting-board was not fixed to the hive, but was attached to two pieces of wood underneath, which were placed on bricks. The floor-board was loose on that, and was always kept nine to ten inches from the ground, so that there might be a free circulation of air underneath. With regard to the Chairman's remarks about legs or no legs, he would say that short legs and a long alighting-board touching the ground answered the purpose very well. There seemed to be an idea prevalent that the floor-board of his hives was placed directly on the ground; that was a mistake. The principle of his, as of all moveable frame hives, was the same as Mr. Woodbury's. He has in use the old Woodbury hives with the slats removed and runners put into them. His were a little larger, containing thirteen frames. In the Woodbury hive there was little or no space between the inner and outer case that could be packed with chaff. The floor-board projected all round about one and a half inches, and the outer case fitted on to the floor-board.

He had allowed more space than that. The hive was placed on a high stand with conical roof, there were no dummies and no lateral movement of frames, and a narrow piece for alighting. With regard to pervious and impervious quilts, he had never found any difficulty in wintering with the former. If there were sufficient bees in the autumn, and the space be adequately reduced, there would be no fear of mouldy combs. The entrance could be lessened to any size, and there would be little danger of dead bees. With impervious quilts the opposite treatment must be followed, but, as Mr. Hooker explained, there must be a covering on the outside, or the condensation would be very great. By 'perfect elasticity' was meant the possibility of enlarging and contracting a hive to the size or requirements of the colony. He confessed to using the frame with short tops, but said there were others who had adopted his hive whilst using the ordinary standard top bar. That detail was entirely a matter of choice, and could be regulated at the will of the bee-keeper. When the standard frame was decided upon the top bar was left long so that any one might adopt what end he chose. Mr. Sambels had asked him if the boards he used were the slatted honey-boards. They were quite different; they were boards on which he worked the circular glass supers. They had three slats one and a half inches wide, the slats being fitted with pieces of perforated zinc. They were not like the American slatted boards although used to prevent the drones and queen from getting up into the supers. The slatted honey-boards were employed for a similar purpose, but underneath sections, and had bars same distance as frames. Mr. Heddon originated the slatted honey-board to prevent the drones and queen getting up into the sections; but he (Mr. Cowan) had used his boards many years before sections were introduced. With regard to the brace-combs below the bottoms of the frames he had not had the same experience as Mr. Sambels, although he had seen a large number of hives with a greater space than that referred to. He thought that the instances mentioned were exceptional. The German frames were three-quarter inch from the floor-board, and yet the bees did not build at the bottom. If they did the hives would be perfectly unmanageable, because the frames could not be easily got out at the sides. Mr. Hooker mentioned the advantages of metal ends so that the frames could be pushed along easily *en masse*. That was an advantage to some people, but not to others, and he was quite sure that those who produced honey on a large scale would have adopted those methods if they were valuable. He had never experienced any difficulty with bees rising between the frames, and thought he could manipulate his hives quite as fast as those who had wide ends. A great deal too much was thought about the advantage of moving all the frames at one time. Hundreds of bee-keepers on the Continent did not use metal ends or anything to preserve distances. In answer to Mr. Garratt he would repeat that although he used frames with the top ends cut off there were others who used the same hive with long ends. All the makers who built such hives usually put in the ordinary standard frames. He had not alluded to his hive as anything new, and had merely taken it as an illustration of the principles for which he was contending. As regarded the zinc or cloth covering, he had no hesitation in pronouncing in favour of the latter. Zinc would make the hive very hot indeed. Paper felt painted over with cloth covering was a much better non-conductor of heat. He could quite corroborate what Mr. Jonas had said in reference to straw hives, which, however, could not be cleansed in case of foul brood, but must be burnt. He thought Mr. Meggy's plan of introducing a class for encouraging the use of standard frames, and exhibiting honey for extracting purposes, was a very good move. He quite agreed with moveable bottoms, and was for having everything made moveable. The largest number of hives in America were merely of wood painted, and were not furnished with an outer case, nor metal or cloth tops. But there the bees were wintered in cellars, and such additions were not necessary.

In reply to Mr. Grimshaw, Mr. Cowan said that it was a mistake to suppose that bees hibernate in the ordinary sense of the word, or do not require air. They do require air, and in the cases cited by Mr. Grimshaw they both had air. If they had been deprived of access to air they would have died. He had had bees die in the winter owing to the entrances being all but closed, and he had had bees winter very well without a floor-board. Semi-hibernation of bees was not true hibernation at all, because activity could be aroused at any moment either by a rise or fall of temperature.

The Chairman moved a vote of thanks to Mr. Cowan, who had come all the way from Switzerland to attend that meeting, more especially as to get here an additional journey was rendered necessary by the impassable condition of some parts of the route owing to heavy snow-falls.

The motion was carried by acclamation.

Mr. Cowan returned thanks, saying it always afforded him the greatest pleasure to be present at their meetings. He would look back to the present day with feelings of gratification. The distance he had travelled was as nothing, for he felt it his duty to come, especially with such a lengthy agenda paper as they had had that day, and show them that the interest he had always felt in the Association and bee-keeping was as keen as ever. He would be obliged to return in a few days, but would carry back with him the pleasantest recollections of their kindness.

Mr. Cowan moved, and Dr. Bartrum seconded, a vote of thanks to the Chairman, which was briefly acknowledged, and the proceedings were at an end.

IRISH BEE-KEEPERS' ASSOCIATION.

The Committee met yesterday. The chair was taken at first by Rev. P. Kavanagh, afterwards by Mr. Gillies. Mr. Sproule, Mr. Read, and the Hon. Secretary were also present. The Annual General Meeting of members was fixed for Thursday, 25th April, at 1 p.m., one of the days of the Royal Dublin Society's Show, at which, by arrangement with the Association, there will be a prize exhibition of hives and other bee-keeping appliances.

EAST LOTHIAN BEE-KEEPERS' ASSOCIATION.

The annual business meeting of this Association was held in the Foresters' Hall on Friday evening, the Rev. Mr. Kerr, Dirleton, President of the Association, presiding. The accounts were submitted, and showed that the financial condition of the Association had materially improved. The following office-bearers were appointed:—Honorary President, Mr. H. Hamilton-Ogilvy, of Biel; President, the Rev. J. Kerr, Dirleton; Committee of Management, Messrs. G. Bertram, Gifford; A. Paterson, Westmills; T. S. Robertson, Westbarns; J. Stirling, Haddington; A. Hogarth, Gimmers Mills; D. Cumming, Haddington; and the Rev. J. F. W. Grant, Haddington; Secretary and Treasurer, Mr. G. D. Clark, Kirklandhill. After the business meeting, Mr. Clark, who is one of the best authorities on bees in this country, delivered a lecture on practical bee-keeping, illustrated by the most approved appliances. He began by explaining that the first thing was to get command of the bees. The Egyptians ages ago used smoke in their manipulations, and at the present day it was extensively used. He was in the habit of using other agents against bees. Of these, carbolic acid is the favourite, though it has the disadvantage of being dirty to work with. It is far too strong as bought from the chemist, so he diluted it to the proportion of one of carbolic to twenty of water, and then dipped a piece of calico in this solution. Another way

was to put it into a spray-diffuser, such as hairdressers use, and so throw the spray in a gentle shower on top of frames. This is an easy, clean, and most effectual method of quieting the bees, but it must never be used when taking off comb-honey as it might possibly taint it. Another most useful method, especially when removing or giving a queen to a colony, is to use the fumes of chloroform. Some colonies of bees cannot be subdued by smoke, but carbolic acid or chloroform have never yet failed with him. Continuing, Mr. Clark deserihed swarming, and how the bees might perhaps be induced to run upward into the skep if placed close above them. Bees readily run upwards, but it is difficult to make them move downwards. A feather dipped in diluted carbolic acid is a great help in such cases. Speaking of putting swarms into frame hives, Mr. Clark said, 'The proper method of doing so is entirely different from that with straw skeps. With a skep you have simply to shake the bees into it and carry them to wherever they are to stand. To put a swarm into a frame-hive you should first have the frame-hive placed perfectly level at the proposed stance, and then use a common skep in which to hive the swarm and bring it to the frame-hive. Then it is that the difficulty usually arises. The old-fashioned plan was to turn back a part of the quilt, and throw the bees down on and behind the frames. But it is a fixed rule with bees to strive to get higher, and when the bees are thrown on the frame it is ten chances to one that they will boil over the side of the hive and prevent the quilt being properly placed. The best plan is to make a sloping platform leading up into the wide doorway of the hive, and then throw the swarm down on this platform. I usually first throw just a few bees from the skep close to the doorway, and then the whole lot a little further back. It is wonderful to notice how those bees which first notice the doorway will set up a joyful hum, and on hearing this the whole army will face towards them and march up into the hive.' Mr. Clark afterwards answered a number of questions put by gentlemen present, and at the close was, on the motion of the chairman, accorded a hearty vote of thanks. Mr. Paterson seconded the motion, and Mr. Robertson proposed a similar compliment to the chairman.—*Haddingtonshire Advertiser, March 8th.*

Curious Bee-hives.—It is no doubt well known to most country boys that the humble bee makes his home in the nest of the field-mouse. Whether the bee drives out the builder and original occupant of the nest, or waits for him to vacate the premises, is not easy to decide. The fact that a nest which is built in the spring will often be found filled with bees and honey in July, proves that it has not been long without a tenant. Mr. Wells, in his account of his explorations in Brazil, mentions finding a great number of ant-hills, four to six or seven feet high, constructed of clay by a species of white ant, but then occupied by colonies of bees. These bees had turned the ants out of their quarters, and domiciled themselves in their place. Without exaggeration, many tons of honey could be collected from these mounds. 'From one hill alone we took out sufficient to satisfy the appetites of every one; even the mules had their share. The honey is found in little compact balls of delicate black wax, about 1½ inches in diameter. Each ball is separate and distinct from its neighbour, and the honey is most excellent in flavour. The bees, of course, flew about us, but were perfectly harmless. They are small and black, not much bigger than a house-fly. The mystery is how they can conquer and drive off the white ants; perhaps many a battle was fought before they gave up possession. However, the bees were evidently masters of the situation. Only on two or three occasions was the same mound found occupied jointly by the bees and ants.'—*Pen and Pencil.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts* (see *2nd page of Advertisements.*)

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

WINTER, VENTILATION, &c.

[2026.] At last we have winter. Towards the end of January the snow began to fall, and now 'the beautiful' lies from two to three feet deep on the level. The bees that are being wintered outside are, in places, deeply covered in snow, out from which they not infrequently come in the spring in excellent condition, especially if the winter has been a severe one. But the results of wintering in a snow-bank are not uniformly successful. I have experimented a little in this line, with general success, though occasionally I have taken a colony from a snow-bank dead—not frozen to death, however, or even smothered, but more often starved. So long as the entrance of hive does not get filled with ice, sufficient air for ventilation finds its way through several feet of snow. In digging a live colony out of the snow, where it has remained for weeks, an empty space is invariably found surrounding the hive from one to two feet where the snow has melted away by radiation of heat from the hive. The last colony I took out dead from a snow-bank, some years ago, had an abundance of honey in the fall, not less than 30lbs., but starved before the first of April. The explanation is this: Instead of being too cold in the snow-bank, they were a little too warm, and were thus stimulated into premature breeding, which of course necessitated increased consumption of food till all was gone. This, however, was a Syrian colony, and the Syrians are much more prolific than either the Italians or blacks, either of which might have come through safely under the same circumstances. The Syrians will often continue the breeding as long as there is any food left, provided the temperature of the hive is favourable, whether it is summer or winter, or whether they are in winter quarters or out. I like prolific queens, but the Syrians in this climate are a little 'too previous' at times.

Ventilation.

This is one of the vexed questions of bee-culture in all countries where there is sufficient winter to involve risk in getting the bees through, the risk increasing, as a rule, with the latitude or lower temperature. Summer ventilation is easily solved and attended to, but the question is, How much fresh air do bees require in winter quarters, and how shall it be best supplied them? One thing is certain, and that is, that amongst the leading apiarists in Canada and the United States (especially the latter), where the rigours of climate necessitate winter protection, the question of ventilation has taken a back seat amongst the essential wintering conditions. It used to be regarded as about the leading factor in successful wintering, but is now relegated to the rear by our American cousins. Some half-dozen or more of the leading bee-keepers in the U.S., including Professor Cook, have practically dismissed the matter of ventilation as quite unimportant in the wintering problem.

While I believe too much stress has been laid on the importance of ventilation in the past, I also believe that these gentlemen are now going too far the other way.

It is worthy of note that our Canadian bee-keepers are slow in following their American cousins in this extreme, or reaction, against ventilation. Like the Briton, we are not so addicted to excesses, mental or physical, and are slower in changing our minds and habits in unimportant as well as important matters. Conservatism is good and Radicalism is good, but the 'golden mean' between the two is generally better and safer than either.

Mr. Cheshire has concluded that not more than five parts of impurity in 10,000 are admissible in air for bees, and that all the air in the hive ought to be changed every half-hour. It seems to be pretty well established that respiration in the bee is under the same chemical and physiological laws as human respiration, the process in each case vitiating the respired air. In view of this single fact, this ultra position taken against the importance of ventilation seems to me to be hasty and untenable. Professor Cook writes that, while he is merely expressing his views 'tentatively' on what he regards an unsettled subject, he believes 'bees need very little air, . . . especially in winter,' and thinks 'we may dismiss the idea of carbon dioxide and oxygen so far as cellar ventilation is concerned.' Mr. Heddon thinks ventilation has 'nothing to do with the wintering problem,' and he would 'not be surprised' if it would turn out that when the other conditions are right the bees 'need no change of air from the time the hives are set in until they are taken out of the repository.' W. Z. Hutchinson, R. L. Taylor, and other leading American bee-keepers, have lately taken substantially the same position.

I cannot agree with them on this important question. While it is no doubt true that in certain quiescent states the bee requires but little air of any kind, the laws of animal life render it equally certain that that little ought to be pure air, and not loaded with the poisonous impurities resulting from respiration. It seems to me that the scientific as well as common-sense conclusion on this subject is that not only the bee-repository ought to be so ventilated as to secure a fair degree of purity of the air at all times, but the hives ought to be so ventilated as to secure regular, if not constant, changes of the air within them. It is well to note that these conclusions against ventilation have been reached not from scientific data, but through *experience*. There seems a consciousness amongst them, however, that science, so far as revealed, is pointing in another direction.

The writer, too, has had some experience in this matter for a quarter of a century. But reasoning merely from experience alone is surely an unsafe business. Experience, unless correctly interpreted, is a veritable *ignis fatuus*. To illustrate this, my neighbour, hale and hearty, who has used whisky and tobacco liberally for fifty years, refers me to his experience to prove that both whisky and tobacco are not only harmless, but positively good for health and strength. His neighbour, equally hale, who has used neither whisky nor tobacco in his life, points to his health and longevity as the result of his abstinence. Each one reaches a conclusion opposite to the other, and each is endeavouring to prove his position by his experience. But the fact is, neither proves his case. Something more is needed. The one who can bring well-established science to his aid to back up and supplement his experience must win, and he who cannot must lose. If the latter can show that according to science liquor and tobacco are inimical to life, and injurious to health, he will establish not that his health and longevity are due to abstinence from them, but that the other man is mistaken in ascribing his health and longevity to them. He will proceed to explain away or interpret the delusive experience of the other man in this way: That you have lived in apparent health and strength for fifty years through the use of whisky and tobacco does not prove that they benefited you, but the fact proves, if it proves anything, that some specimens of humanity are tough, and that in virtue of a good constitution, and perhaps otherwise good countervailing habits, you have been able successfully to resist and withstand their evil effects.

So is it with the experience of bee-keepers in the matter of ventilation. One tells me his bees wintered all right without any ventilation at all, and therefore ventilation is of no importance in wintering. Another tells me his bees wintered all right because he had them well ventilated, not only the repository, but the hives, and therefore ventilation is the primary condition of successful wintering. Each is proving his point by his experience, and each is jumping at unwarranted conclusions from a single premiss—itself being false in the one case. The one who says his bees wintered all right without any ventilation at all is undoubtedly mistaken if he means they wintered without a change of air, and this evidently is what he means. He may have made no provision for ventilation, but, nevertheless, the air got in 'unbeknownst' to him. It would astonish some people to learn how air *will* make its way through walls and things, especially when the outside temperature is so much lower than that of the repository. When the bee-keeper thinks his bees have had no change of air the winter through because he made no special provision for ventilation, the laws of nature contradict him, and it is therefore reasonable to suppose he is mistaken. They wintered with perhaps *inadequate* ventilation, because the other essential conditions were favourable. The answer to the other man, who thinks his bees came through all right *because* he had them well ventilated, is, 'No matter what attention is paid to ventilation, unless the other more important matters of food and temperature are right, the best ventilation will avail but little. The truth of the matter seems to be that there are but three or four important conditions of safe wintering, one or more of which may be more or less imperfect without seriously affecting the results. First amongst these is doubtless food, next temperature, and my opinion is that ventilation comes next.

How shall we ventilate? must be answered, According to the circumstances. In ventilating the repository strong currents should be avoided; also in ventilating the hive; but there should be a steady and constant change of air, disturbing the temperature as little as possible, unless when it is desirable to raise or lower it. This can best be secured in the repository by ingress through a sub-earth entrance for fresh air, and egress by means of a pipe from near the cellar floor up connecting with a stove above, or directly with the chimney, or other exit outside. I have followed this plan with excellent success for many years, wintering in a partitioned-off apartment of the cellar under the dwelling-house. To properly ventilate the hive there must be two avenues in the fast bottoms. Loose-bottom hives may be either raised an inch or two from the bottom-board, or placed upon a rim two or three inches deep, with two openings. I never make a fast-bottom hive without a ventilating hole covered by wire gauze inside, and a button outside in the back part of the hive opposite, but higher up than the entrance. This can be kept closed when not needed.

In out-door wintering one avenue for ventilation—the entrance—is doubtless sufficient, as I have always succeeded with one. It is well, however, for the best results to have the top packing of absorbent material.—ALLEN PRINGLE, *Selby, Ontario, February 18th.*

BEE-KEEPING FOR WOMEN.

[2027.] There has been a great deal said, *pro* and *con*, about women engaging in this delightful pursuit. Some

of the brotherhood raise their hands in holy horror to even think of such a thing as their daughters being stung, climbing trees, or having their delicate hands stuck over with propolis. There is no need of these dreadful things if the right kind of management is practised. A writer of the female sex, who must wield a fountain pen, as it never ceases to flow, uses it continually against women engaging in it, crying, 'Too hard work; easier to chop wood, drive a mule team, or work in the harvest field.' Women and girls, let me whisper a secret in your ear. They want to keep us out, fearing that we will produce so much honey that it will be *cheap*, and specialists cannot make a fortune at it. Never mind, when a woman wills, she wills, and we will get there all the same.

Starting in the Business.—It is half the battle to commence right; have the powder dry and the soldiers well fed. Your locality may not be the best one in the world for keeping bees, but use it all the same, and you may be surprised at the result. My own door-yard is no doubt my best place, for I can look out of the windows overlooking my apiary while I am busy with household cares. This is why it suits women so well; it is something that we can do at home, and at the same time look after our family. I once thoughtlessly made a very unkind remark to a woman, the mother of nine children, the youngest being a pair of twins, it was this: 'If I had as many children as you have I would not keep bees.' As I drove home I recalled the saying to mind, and thought if I had nine children and a ne'er-do-well husband, how glad I should be that I could keep bees to make a living for them.

You all have a home, and a yard. I know some successful bee-keepers who keep them on a flat roof of a four-storey house in a large city. A poor widow in one of our western cities, who is only able to rent a few rooms in a house for herself and children, by keeping a few colonies on the lean-to roof of a kitchen adds materially to her support.

One or two colonies are enough to commence with if you are a novice, and your knowledge should increase in the same ratio as your bees. The *British Bee-keepers' Guide Book* should be studied next to the Bible; then you will be able to talk 'bee,' and understand lectures, and be profited by exhibitions, shows, &c., and be an intelligent reader and contributor to the *British Bee Journal*.

Buying Bees.—The best way to purchase bees is to buy of some reliable bee-keeper a good colony of Italian bees in a moveable frame-hive, and leave transferring from straw skeps, and introducing queens, to the veterans, although a valuable lesson would be learned in this way. If you are not able to afford the outlay, get them in any way and shape you can, and keep them in that way until you can make money enough from them to purchase better hives and bees. If you can keep a few colonies profitably you may safely invest in a larger number.

Benefits.—The benefit to women by cultivating bees is not to be reckoned in pounds, shillings, and pence, although they can have no pleasure equal to that of earning their own money. There are many women who cannot enjoy good health unless they exercise freely in the open air, yet cannot afford to spend their time in walking, without any pecuniary returns. Dr. John Cumming, the late Bee-master of the London *Times*, says, 'When pleasure and profit can be combined, time runs swiftly and the heart is glad.' Handling a colony of bees during their working season, when they are visiting thousands of flowers, and bringing home their delightful odours, is very healthful and invigorating. I was once very ill, and as soon as I was able to walk I went into the apiary and uncovered a colony, sat down by it, lifted out the frames, breathing in the effluvia, I was refreshed and invigorated at once.

Educators.—

> 'So work the honey bees,
> Creatures that, by a rule in nature, teach
> The art of order to a peopled kingdom.'

Not only do the bees teach industry, neatness, and order, but we see that they work for a purpose; they spend no time in idle gossip, but all they do has an end in view. In cultivating bees we are improving our own powers of observation—sight, smelling, and hearing are all quickened. With how much joy we watch the first bees bringing in pollen in the spring, or hear the note of the robber or the happy hum of plenty.—Mrs. L. Harrison, *Peoria, Ill.*

WORKING STRAW HIVES FOR PROFIT.

[2028.] For many centuries the straw hive has been used as a bee domicile, and the cottager still clings to the time-honoured custom with tenacity. During the winter months he works his straw skeps, in preparation for the coming season; and when the honey season is past he takes the greatest pains in packing the bees snugly and warmly for winter. There is nothing so attractive and thrifty-looking with the cottager than his row of neatly 'brooded' straw hives. It is always found that those who manage their skeps in a business-like manner are the most successful bee-keepers when they adopt the more modern or frame-hive system. My first stock of bees was in a straw-hive, and since then I have never been without a few stocks in straw. One hundred years ago James Bonner, the great Scotch bee-master, who wrote two standard works on bees, says, 'There is hardly anything that is requisite to be done about bees that I would not take in hand to perform, with sufficient time and attention.' Artificial swarming, queen-raising, driving, uniting, &c., he managed successfully. Many bee-keepers of the present day could derive some useful lessons from his works. In one respect alone does he fail, compared with modern bee-keeping, and that is in the production of comb honey. In trying to obviate this failure let me note that in Bonner's time straw skeps were made with dome or bell-shaped tops, consequently were not adapted for any supering system. For the raising of early swarms and for ease in wintering the round-topped skeps may be used to advantage. I shall briefly point out to the cottager what kind of straw-hive he should use, and how to make them profitable in comb honey production. First, he should fix on a given size and pattern. A hive about sixteen by ten outside measure will suit most localities. Procure from a basket or hoop-maker some rims sixteen inches diameter, one and a half deep by half inch thick, having a row of holes bored along the under edge of rim wherewith to attach the straw, and about an inch apart. Another rim half an inch square should be nailed on the inside of the larger rim, half an inch from the top edge: this forms a check or rest for the wooden bars 'one one-eighth by half,' which forms the crown of the skep. These wooden bars to have a groove along the under side, in the centre to fix the foundation guides.

The sides of the sides of the skep should be perpendicular and firmly sewn. If an ordinary person can stand on the top of the skep without it yielding it is a good test. A honey board 16×16 placed on the tops of bars, with openings to suit, and a floor-board completes the straw hive.

Crates of sections and supers of any design can be worked on this hive, and with care extracting of the combs in it can be managed. The non-swarming system can also be practised by placing a similar skep below the stock hive. To the cottager, who usually works for comb honey, and who generally takes a pride in making his own hives, this will be found a handy and cheap straw skep.—W. McNally.

IMPERVIOUS QUILTS.

[2029.] In my letter (1998) will be found the following statement, compiled from *Gleanings in Bee-culture*: 'The opinions of sixteen of the most eminent bee-keepers in the United States have been solicited as to the best material to use as quilts next the frames; of these, ten advocate impervious quilts, four of these simply use the flat cover of hive, which, being wood and covered with propolis, are impervious; wooden quilts are advocated only by four, &c.' 'Woodleigh' says I am wrong, which I think is equivalent to asserting that I cannot read or am perverting the truth. The following are the ten apiarists' names with opinions:—Viallon (enamel cloth), Dr. A. B. Mason (enamel cloth, if he had it), L. C. Root (enamel cloth), E. E. Hasty (enamel cloth), Dr. C. C. Miller (enamel cloth, though he does not use it, but, instead, an impervious quilt of several thicknesses of paper, a piece of muslin well propolised under), Jas. A. Green (enamel cloth), Boardman, Grimm, Ellwood, and Heddon use wood covers, which are impervious; A. I. Root advocates enamel cloth, if well covered up with some thick material or a cushion (this must be done with any quilt, be they impervious or not), making eleven opinions in favour of impervious quilts instead of ten, as I first asserted. Smith, Dadant, Mrs. Harrison, and Doolittle advocate woven material; Cook and Poppleton give no opinion, the latter asserting that if used with open top-frames he could give no opinion; this latter answer is difficult to understand. I do not know whether the Cubans use a different frame to those in use in the United States or Britain, but most certainly all frames used in this country are open top.—W. B. Webster.

A SCOTCH LADY'S EXPERIENCE.

[2030.] This by way of a 'Thank you very much, Mrs. Harrison, for your kind letter.' It is in response to the kind wish expressed there that I now write, though, after all, it seems to myself there is not just very much to tell. I began to keep bees of my *very own* in 1883, when I bought a skep from an old friend, who gave me his best skep, and his best wishes with her; and turning to my bee-book, I find this entry: 'Had a fine swarm on 1st July, which flew away.' Had other two swarms that season; both died during winter.

1884.—Had still the stock hive, which threw off a swarm on July 2nd. It also flew away. There were no more swarms that year. So much for 1883 and 1884. *Nil desperandum.*

1885.—Again began with the old stock. Got a splendid swarm on 2nd July. They came off about nine o'clock, and clustered in the top branch of a big tree. One of my boys was to saw the branch, and let it gently to the ground, where I was standing with a Woodbury bee-hive to put over the cluster (for you must know, Mr. Editor, though my stocks had stood still, I had advanced so far as to invest in a bee-hive). When about half through, the branch snapped and fell, bees and all, at my feet. Assured my boy had not followed suit with the branch, I waited till he came down, and having a good hearty laugh at each other (for we were literally covered with bees), we noticed the bees were settling once more, on the broken branch on the ground, and thinking I was in luck at last, we placed the bar-hive over the swarm, covered them up from the bright sunshine, and waited. How glad and proud I felt, Mr. Editor, when, after a bit, they began slowly but steadily to take possession of their grand new house, as if to the manner born; how, after my husband came home, I could scarcely wait till he had his tea, so eager was I to show him my bar-hive with the bees *in it*, I need not tell you now. Alas! alas! when we lifted her to place her on the floor-board, and carry her where she was to stand, nearly all the bees and foundation were among the branches on the ground. I had placed the bar over the bees at an angle of 45°—this was the result. It was enough to 'gar me laugh, though I was wae,' and 'greet though I was glad.' It was now nearly eight o'clock, but a lovely evening. Well, we fixed starters in the frames again, set the bar on the floor-board, spread a white towel between the bar and the bees, took spoons, and laid a spoonful of bees all up the towel till the door of the bar was reached, and waited. Not long though; it was worth all the extra trouble to see the pell-mell rush and scramble there was to get in, and to hear their song, which to me at least resolved itself into, 'Guid night, and joy be wi' you a'.' About ten o'clock we carried her to her stand without so much as a sting to remind me of the blunders of the day that left me with a bee in my bonnet, sure enough. The tide, which hitherto had been ebbing, had turned, and some other time perhaps I may tell you something of its flowing, which has left me the happy possessor of fourteen bar hives, the inhabitants of which were all well and lively on February 18th.—A Scottish Cousin, *March* 1889.

NOTES FROM A JUNIOR.

[2031.] *Stings.*—I have tried remedies almost without number, but all to no purpose, in trying to prevent and reduce swelling. A good many will ease the pain, such as plunging the part in cold water, but it is not the pain that troubles me. I can bear that (with a wince). I find the swelling is worse when one is in a perspiration, such as when working with the bees on a hot summer day. I suffer very severely when stung, although I have received some hundreds in my time. Last autumn I went to drive some stocks for the Rector of a village a few miles distant. I rode there on horseback. During the operation I received a severe sting on the wrist. When I reached home my arm had swollen nigh to the shoulder. A rash came out all over me. The result was I was not fit for anything for three or four days after. I put the excessive swelling down to the exercise of riding. The only remedy that I find of any account is to extract the poison by pressing the wounded part with a key as quickly as possible after being stung; but it is no good to press gently, you must press even to pain, which will extract both poison and sting. Another good plan is to pinch it well.

Wintering, Carniolans, Italians, and Blacks.—The bright weather that we have been experiencing lately encouraged me just to take a peep at my bees. I simply rolled back the quilts. I could see at a glance their condition as regards numbers, health, and stores; they are in splendid condition; stores sufficient to carry them through to the end of March. Carniolans are the bees for me; their hive contains more bees at the present time than any other hive in my possession. The death-rate is almost *nil*. I could not find a half-dozen dead bees either in front of the hive or on the floor-board. Blacks and Italians are about the same with regard to their wintering qualities. I thought on looking at one of my black stocks that it was a case with it. They were quite 4 in. from the top-bar, and could not be seen at a glance. I put the cause to be that 4 in. down was one slab of stores. I prefer to see them close up to the quilt; that had been the warmest part of the hive.

Hive Stands.—I always keep my hives (Cowan pattern) 12 in. from the ground. I use separate stands, which any one could make for less than a shilling. Packing-boxes can be obtained for about 3*d.* each, taking care that the stuff is not less than ¾ in. thick. I make the top (which is battened together) 2 in. wider than the hive, and 6 in. longer. The extra length is kept in front, which acts as a second alighting-board. Bore four holes with a centre-bit at the corners, slightly

splaying both ways to the outside. For legs I use broom-handles cut to length.—FREESTONE.

[We thank you for description and engraving of wasps' nest enclosed: it will be of service to us.—ED.]

EXCLUDER ZINC.

[2032.] Exeluder zinc I consider one of the most valuable inventions of bee-applianees that have yet been brought before the public. If 'J. B. R.' does not wish to meet with disappointments, by all means let him use exeluder-zine to all his hives, no matter whether for comb or extracted honey. When the queen has full liberty to all parts of the hive, she is almost sure to find her way up into the sections, more so partieularly when there is only a limited number of drone-eells in the brood-ehamber. Sections with me are mostly drone-eomb, and through this being so searee in the brood-frames, the worker-bees escort her up into the ehamber above, where she ean deposit drone eggs either to her own satisfaction or to the worker bees'. During the season of 1887 I had many stones of seetion honey spoiled through not using queen-exeluders. In one hive alone where I expected to take not less twenty pounds of honey, but instead of that I was awfully disappointed, I had to be satisfied with ten two-pound seetions, filled more or less with drone-brood; in some of them almost every eell was full of drone grubs. This is only one instanee, as I had to meet with many more similar disappointments in other hives, and in working for extracted honey without the use of exeluder zinc I have found seventeen out of twenty-two frames more or less filled with brood. In meeting with so many disappointments and great losses, I was so disgusted that I determined never to risk another hive without a queen-exeluder. If we would believe all that has been stated in the *Journal* against the use of exeluder zinc, we would be very mueh led astray, as this was the chief cause I eontinued without so much as I did. I have never had any difficulty in getting my bees to take possession of the seetions with queen-exeluders put on at the same time. But I always provide the first crate of seetions with some ready-made eombs, and two or three of them with a little honey in them. This is a great inducement in getting them up into the sections, and when they require more room, queen-exeluder zinc is no barrier to them. I remember a ease that eame under my notice in 1886. I put a ease of sections on in the morning, the front seetions were nearly filled with comb, and in the evening of the same day the front seetions were more than half full of honey. Had they forgotten that there was a queen-exeluder on? No; but they took no notiee of it. Now, Mr. 'J. B. R.,' I think I have said sufficient to convinee you that it is a dangerous road to travel unless you make use of exeluder-zinc, as I have had dearly to pay for my experienee, but now I have made sufficient queen-exeluders to exclude me from all danger for the future.—BILLIE PATTISON, *Keswick*.

Echoes from the Hives.

Needleworth, St. Ives, March 1st.—I do not think there will be many stocks alive through the spring in this neighbourhood, as our Rector has eleven dead out of twelve, and an old skeppist told me the other day that he did not believe there would be one in forty alive; so as mine are all alive, it makes me anxious to keep them so, as they will perhaps pay me this year for the heavy loss of last.—ST. IVIAN.

Odcombe, Ilminster, March 8th.—I am sorry to say there is a very large percentage of tenantless hives in this part, in consequence of not being sufficiently fed up at the end of last season. So far I have been very fortunate, having only lost one stock out of nineteen, and can only account for the loss of this one by robbery during one of the mild days we had here only a short time since, every cell being cleaned out, and all were fed alike for the winter, each hive storing about 26 lbs. of thick syrup, of which all the other stocks have a plenty left, nicely sealed. This stock appeared to be doing as well as the others not more than a fortnight since. I have now, to make sure, given them each a cake of candy, and hope to commence feeding with syrup in about a fortnight's time.—J. SARELL.

Honey Cott, Weston, Leamington, March 11th.—Since my last Echo, January 24th, my bees have not had many chances to fly, not more than about three times, till this last three days. Now they are on the wing, and on the look out for flowers, and I suppose to see if they can get a little pollen. I have given them some pea-flour in a skep on some shavings, which they are taking advantage of, although the wind is blowing cool from the north, yet it is very warm in the sun. I also placed a small barrel with a tap in it in a hedge on the sunny side, and I have it filled with water; I just turn the tap so that it can drop quite gently on to a slanting board, and as it runs down the bees fetch the water. They appear to like the arrangement, as they frequent the place in great numbers. I have had no chance as yet to look the stocks over, no more than just taking a peep by raising the quilts, &c., to see that the bees were not getting short of food. If we get some nice weather things look promising for a good start; the plum-trees will be in bloom in a few days.—JOHN WALTON.

BEES IN PALESTINE.—In Palestine there is an abundance of the hive bees of England, and yet more of those of South Europe and the wild bees. The allusions in Scripture are mainly to the last, which attack plunderers with great fury. Their abundance is certified by the term descriptive of Palestine, 'flowing with milk and honey,' for which its climate and aromatic flora are peculiarly adapted. They are most numerous in the wilderness of Judæa. Honey was one of the delicacies sent by Jacob to Egypt, and a commodity supplied by Judah to the market at Tyre. They are also found in Assyria. Honey is still so plentiful about Palestine that the inhabitants mix it in all their sauces, and it is seen flowing in the woods of Arabia. Bees swarm in the hollows of rocks and trees. Various species of humble bees and mason bees are very numerous.—GEORGE MCLEAN, *Roseleaf Cottage, Beauly, N.B.*

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

A LOVER OF RIGHT.—1. *Frames.*—Accurate workmanship in the manufacture of frames is of the greatest importance, as without it the full advantages to be derived from the moveable-comb system cannot be secured. If the frames supplied are not truly made, others should take their place. 2. *Ringing.*—Ringing with fryingpan and door-key at swarming time is unnecessary, and need not be resorted to. The practice is rapidly dying out. 3. *Flight of Bees.*—It is not desirable that bees should fly far from their hives in search of stores. Bees frequently fly three miles from their homes, and we have well-authenticated instances of their having been found five or six miles away. 4. *Dandelions.*—In April and May the bees may be seen upon these flowers, collecting pollen of a

brilliant orange colour. 5. When you are in a difficulty, we shall be pleased to render you any assistance in our power.

J. B. R.—We are considerably obliged by the trouble you have taken in forwarding the list of bee-keepers in your neighbourhood. It will prove of service to us. The letter accompanying it will receive our best assistance.

Sussex.—*Glass Sections.*—We are of opinion that glass sections will in the future be considerably in use; but the advertisement Mr. Chitty alluded to has not yet appeared in our columns, and we are not at present prepared to express any opinion on the glass cylinders mentioned by him. Thanks for your communication.

O. L.—*Moving Bees.*—Move at once, or very likely the bees will be suffocated. *Outer Case of Cowan Hive.*—Yes. *Cowan Hive.*—Kindly refer to our advertising columns.

W. E.—*Administering Chloroform by means of Smoker.*—Place cotton-wool saturated with chloroform in chamber of smoker, and blow; but our advice is to have nothing whatever to do with that or any other anæsthetic.

East Dulwich.—*Drone-Comb in Frame-Hive.*—If there is no drone-comb in any of the other frames allow it to remain; but if there is, cut it out and contract the space between the two combs contiguous to it to one bee-space width. *Syrup-Can rusting.*—This will not injure the syrup if it is not allowed to remain in the can over a fortnight or three weeks. Well scrub the can before putting in syrup with damp salt, rinse out with clean water and dry.

A Subscriber.—*Artificial Swarm.*—As your sight will not allow of your finding the queen, you had better take half the frames together with adhering bees, and place in empty hive, move old hive not more than a yard away, and place fresh hive in its place. In about twenty-four hours the hive without queen will commence to raise queen-cells. Either colony can be then strengthened by moving into the position, during flight time, occupied by original colony.

J. Henderson.—1. *White Substance in Pollen.*—The white substance is mildew. Pollen always becomes affected with mildew during winter, when the small quantity of honey, which is usually placed by the bees over the pollen before dealing, is consumed. 2. *Dead Bee.*—The almost unrecognisable remains were those of a worker. 3. *Dead Colony.*—How can you expect us to give you a reason for the death of the colony with such data? Your letter, in substance, simply says my bees are dead; what did they die off? 4. *Books on Bee-keeping.*—*Modern Bee-keeping*, Cowan's *Guide*, Webster's *Book of Bee-Keeping*; for more expensive works, Cheshire's *Bees and Bee-keeping*, Simmins' *A Modern Bee-Farm.*

Non-Plussed.—*Best time of year to remove Colony from Tree.*—During warm weather, end of April or May. Feed freely when transferred.

E. E. C.—*Entrances.*—As soon as the bees begin to fly, it is desirable that the entrances should be somewhat reduced. This decrease in the width of entrances, to prevent robbing during the time the income of honey is but slight and before the honey glut, will tend to the well-being of bees. As soon as the bees increase in numbers, and the honey flow sets in, entrances may again be opened the full width, as then there is no further danger of robbing. It should always be understood, when using an impervious quilt, that two or three thicknesses of carpet should be placed on the top of the enamel cloth to prevent its coming in contact with the cold air and consequent condensation.

St. Ivian.—*Treatment of Bees.*—In the midst of so great a mortality among the bees as that stated in your letter you cannot be too careful; your treatment up to the present time is all that could be desired. Should the bees require any more food place sugar-cake on the tops of the frames.

Received from Mr. Edward John Burtt, Stroud Road, Gloucester, his Catalogue of Bee-keeping Appliances, with Illustrations, 26 pp.

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June 24–29.—Royal Agricultural Show at Windsor. Entries close May 1st. Secretary B.B.K.A., J. Huckle Kings Langley, Herts.

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Godman, A., St. Albans.
Howard, J. H., Holme, Peterborough.
Hutchinos, A. F., St. Mary Cray, Kent.
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'LAIBACH, CARNIOLA, AUSTRIA, *Dec. 2nd*, 1887.

'The new book came this morning. It is now midnight, and I have spent the whole day with it. You have indeed done well what few accomplish at all—made a book which is full of interest to every enthusiastic bee-master ; yet for the beginner a simple, pointed guide to success. . . . . Since Langstroth's book nothing, except Cheshire's magnificent work, compares in interest or value to this. It has given me already more in value than the price of the work.

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One who has kept bees for a number of years, says : 'I have just finished reading your book (*Modern Bee Farm*) for the third time, and beg to thank you for the great treat it has been. As I happen to have thousands of acres of heather within easy distance, I am specially pleased with the chapters treating on working for heather honey.'

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Editorial, Notices, &c.

NECTAR.

Very few bee-keepers will require to be told what nectar is,—a sweet, saplike exudation found in various parts of plants, principally near the bases of flower-petals, highly flavoured, and medicinally charged with the active principle of the plant which secretes it, this nectar being very rich in cane sugar, which is changed by the bees into grape sugar, such a change being absolutely necessary before cane sugar can be used in either bee or animal economy as heat-producing food, assimilation being otherwise impossible. This is all very well, but it only goes part of the way. Nectar is more than all this, for it varies as much probably as do the drugs on the shelves of the chemist's shop; it is health-giving or poisonous, agreeable or positively distasteful, according to its plant-source, and it is only by the accidental mixing by the bees, when the source of income is various, that we are so seldom brought into contact in this country with its deleterious or distasteful properties. When we get unmixed nectar, unmixed honey, we run a risk of finding odd individuals who are unable to partake of such honey without unpleasant consequences, but in the other and great majority of instances the same honey is not only a delicious sweet, a wholesome food, but a positively beneficial diet from a medical point of view.

Having thus rapidly sketched the varying conditions of nectar from the moment of its seizure by the bee from its tiny resting-place upon the plant to its use by us as food, let us try to conduct our readers through what we consider the alphabet of its growth, the spelling of its mysterious constitutions, for the marvels of the chemistry applied in its cell laboratory we perhaps shall never attain to. In order to understand all action, a rough and crude outline of a portion of structural botany may be here necessary. All plants consist of a number of cells of various shapes (more commonly circular or egg-shaped), and it is by the growth, subdivision, and multiplication of these cells that the structure of the plant is increased. The cells reach from the naked white cells at the extremities of roots to the cells at the terminal points of the growing bud, including the cells filled with coloured sap on the flower petals, and others found in fruits or seeds, each cell doing its work in wonderful sequence and order. A growing nucleus, moving in protoplasm, surrounded by fluids, and confined by a skin, is the normal condition of such cells as we are dealing with in this article, therefore, to illustrate the circulation of the sap we ultimately meet as nectar, we will proceed to describe what is termed 'osmose' (the mixing of substance through a dividing film or partition). Suppose we fill a common bladder with honey, tying in the bladder neck a glass tube, and plunge the whole into a vessel of water. The different densities of the two substances divided by the permeable wall will gradually be adjusted, but for a long time the water will pass into the bladder, causing a rise in the tube. This is endosmose, and is similar to the action of the root-cells, which absorb water out of the earth; the water mingles with the denser cell contents, and the denser cells adjoining act in a similar way to each other, passing the sap upwards, and thus starting circulation of sap. It is thus, by imbibition of water, that we get tension of the cell membrane, resulting in various modifications of cell and vessel formation in various parts of the plant.

There is, however, another action performed by the film of our bladder, which we will now suppose to contain a stained substance (of different density to the surrounding water). Not only will the water be passed in by endosmose, but a portion of the bladder contents will pass outwards by exosmose. The sap passes upwards by the central parts of the plant until every growing part is bathed by it as completely as our own flesh-cells are momentarily supplied by the circulatory system of the blood. The green colour contained in the leaves and many stems of all plants is chlorophyll, a chemical substance which can only be secreted by the cells in the presence of iron and light. Openings between cells (stomata) permit the passage of the atmosphere amongst the cells, and as the atmosphere contains a varying percentage of carbonic acid (carbon dioxide $C O_2$), a peculiar action takes place immediately this gas comes into contact with the grains of chlorophyll moving about in the cell-sap, *i.e.* the carbon is seized and split from the carbon dioxide, the oxygen is set free, to again refreshen the air. The carbon particle grows gradually into starch grains by additional secretion, but as these are insoluble in water alone, they remain fast prisoners in the cell, waiting to be acted upon in another way (be it remembered that the movement of water holding various substances, mineral and otherwise, is a constant necessity of life and growth) by metastasis; that is, certain chemical constituents of the sap (mineral, alkaline, or acid substances held in solution along with alkaloids and other active principles), amongst other wonderful properties, possesses one of converting starch into sugar. It is thus dissolved and carried about into various parts by the exosmotic action already described, to growing points particularly, and by consequence to the flowers. We have thus a perfumed nectar in the sap of a comparatively stiff, sluggish consistency and movement, by reason of its distance from its water supply and the

amount of water lost by evaporation through the stomata (cell-mouths).

If we cut in two, sharply, the stem of a juicy plant, we rupture the cells, when, the extremes being relieved, the unimprisoned sap is observable, and this is in greater quantity nearer the centre of the plant. On the other hand, if we cut a strip of bark off the round of a young tree, we shall notice the flow of sap greater on the upper portion of the remaining bark than on that below. We deduce from this that the circulation of the sap is (crude, weak, and fluid) up the centre, but down the outermost parts of the plant, perfected and rich in preparations ready to be stored in fruits (seeds), tubers, &c., and for the formation of new wood. There is, then, an outward movement of perfumed sap, rich in sugar, and this must necessarily pass into and through the arrangements of superficial cells known as nectaries. Linnens erroneously called every gland-like structure a nectary, if it seemed not to be an integral part of the general organs of the flower, and De Candolle* throws much light on the whole subject when he informs us 'that in regular flowers the nectaries may be found placed in a symmetrical manner;' and, not finding this the case in irregular flowers, he pertinently asks, 'Is it the presence of these irregularly placed nectaries which causes the irregularity of the flower, or is it the irregularity of the flower which causes that of the nectaries?' In our opinion he slowly but surely advances to a solution of the question, observing 'that when one sexual organ is aborted, its place is taken by a nectariferous gland. . . . . The nectaries upon the inner surface of the corolla are always superficial, and they often cause a cavity there;' so that if, as in the case, the outer surface cells of the nectaries of flowers are rich in saccharine matters, and denser than innermost sap cells, the cell shape becomes contorted, having as a place for growth only the surface previously occupied by atrophied floral organs. To make ourselves plain, if the stamens or petals of certain flowers disappear, their place being occupied by a nectar cavity, there will be a tendency towards distortion of the cell walls, extreme tension produces rupture, and we thus by one means get exposed nectar. Irritation by the tongue and maxillæ of insects is doubtless another method of getting at the same result when we remember that the sap in the cells is at such a tension that the imbibition of water by them splits the wood of the surrounding stem. A further cause of the exudation of nectar is that 'the constant chemical changes going on in the interior of the plant give rise to electrical conditions,'† and when this is accompanied by various electrical changes in the surrounding atmosphere, we can easily conjecture the rupture of myriads of torsioned cells, and the well-known resultant honey-glut; especially is this the case when the air is humid, the reason being apparent on the surface. This humidity of the air brings us to what we consider the ordinary mode of procedure by the plant in the production of nectar, a condensation of aqueous vapours by the plant-cells of the flower (and these are always colder than the surrounding air, except in case of nipping by frost), results in droplets of dew, which run and fuse together, like condensed steam on a window-pane; this collects in certain depressions called nectaries, when the osmotic action previously alluded to takes place, producing actual rupture of the cell, the contents of which mingle with the condensing moisture, giving us the true nectar, the veritable honey-dew. The waving, irritating motion given by the wind, the rapid variations of the surrounding moisture indicated by the barometer, a sudden rise in temperature, are all conditions accompanying electrical disturbances, and therefore are accompanying conditions to nectar secretion, or rather to nectar expulsion.

* *Vegetable Organography.* † McNab.

ON PARTHENOGENESIS.*

(A leaf from an old College Note-book of the year 1871.—Heinis, *Waldenburg.*)

The propagation of organized bodies, whether animals or plants, is carried out in nature in three ways, viz., first, by division; second, by budding; third, by eggs or seed. The first two processes of propagation occurring in the lower forms of animal life and in plants, we need not take into account in examining the theory of parthenogenesis. The only question that concerns us here is that of reproduction by sexual intercourse, which alone occurs in the more highly organized animals. In these we meet with organs specially adapted to this purpose called ovaries, in which the eggs originate. But these eggs can only be developed by the injection of spermatozoa from the testes, or organs of the male. These testes are sometimes interior, but most frequently exterior. Sometimes they are found united, but in the most highly developed animals always separate. Hermaphrodites, *i.e.* when the sexual organs are united, frequently propagate their species, but as a rule sexual interconrse between the sexes is necessary for that purpose. Hermaphroditic reproduction is general in the lower animals, and in almost all plants, but the higher animals are propagated by sexually differentiated organs.

It was discovered about the beginning of the present century that there are several species of animals, as well as of plants, possessing one sex only, and this originated the theory of parthenogenesis, *i.e.* reproduction without sexual intercourse.

By degrees, however, the discovery by means of the microscope of the male organs in such animals put an end to this apparent anomaly, and parthenogenesis got into discredit. The idea of animals being capable of reproduction without impregnation was not entirely abandoned by zoologists. In botany also experience by degrees brought out the fact that impregnation by pollen was necessary for reproduction. It was therefore laid down as a truism that *no egg is capable of development unless previously fertilised by the male organ.* The opponents of this maxim endeavoured by all possible means to maintain the doctrine of parthenogenesis, but their investigations failed to convince, and it was objected that parthenogenesis was opposed to the law of nature. However, there is no rule without an exception; cases of parthenogenesis began to multiply, only they were not discovered where they had been looked for.

The following was one of the arguments in favour of the theory of parthenogenesis:—The Psychinæ, a most interesting family of the Bombycidæ, were for a long time believed to increase by parthenogenesis, none but the females of these insects being known. More especially does this apply to Psyche graminella, the caterpillar of which butterfly lives through the winter in the nymphal state in a cocoon. At the commencement of spring it bites its way through, feeding on grass until the end of May or beginning of June, when it changes into a chrysalis, attaching itself to an object at a considerable height from the ground. The male leaves the cocoon three or four weeks later as a butterfly. The female merely bites an opening in the cocoon, turning round, and waiting patiently until a male insect comes to impregnate it; the hind part of the male being long and flexible, is specially adapted to the purpose. The cocoon is afterwards filled with eggs, both male and female, to which it acts as a protection. These eggs were supposed to be produced by parthenogenesis, until it was discovered how the fecundation took place.

* These notes were taken at the lecture delivered at Munich by Professor Karl von Siebold, the scientific founder of modern bee-keeping, born at Würzburg on the 15th February, 1804, Professor at Munich since 1853, died in 1883.

Certain silkworms are said to lay eggs without the female having been impregnated. As they wrap themselves in double cocoons, it was argued it was possible for fecundation to take place in these double cocoons, it being difficult to distinguish the double from the single.

We can easily understand by such reflecting cases parthenogenesis became discredited; in fact, it was almost entirely given up. To Dr. Dzierzon, however, the great bee-master, is due the credit of having directed the attention of scientific men to the fact that the unimpregnated female bee is capable of laying eggs, from which drones originate. Dr. Dzierzon's observations were confirmed by Professor von Siebold, and the doctrine of parthenogenesis has been again placed on a reliable basis.

In order to understand parthenogenesis in bees, and to become convinced of its possibility, it is necessary to acquire a thorough knowledge of the sexual organs of these insects. It is remarkable altogether that the female of an insect should submit to fecundation long before it is able to lay eggs, but it is so organized as to receive the spermatozoa from the male insect in a special seminal sac, where they remain operative for years, and may be drawn upon as required. The females of insects, including the females of bees (queen and worker bees), like all animals, possess two ovaries, with two oviducts, which further on unite into a single duct, forming the laying apparatus. The eggs in the upper part of the oviducts are first found to be in an immature state, but as they advance they become mature and developed. The position of the spermatheca is at the union of the two tubular oviducts. During the act of copulation, the fluid from the testes of the male is ejected into the spermatheca of the female, and in a fertile queen the sac is found to be quite filled. Into it opens a duct from a gland, which secretes a liquid that serves to keep the spermatozoa in a fresh condition. When the eggs are passing the opening of the spermatheca, they receive some of the male fluid. From the above it will be seen that one need to be correctly informed with regard to the subject in question to discern in parthenogenesis a mode of reproduction.

Let us see how in practice bee-keeping has been able to render this important service to science. For a very long time the most erroneous opinions prevailed respecting the doings of bees, the reason being that it was impossible until late years to view the interior of the hive. The combs could not be taken out for examination separately and replaced at pleasure, and in spite of the antiquity of bee-keeping, which was practised by the ancient peoples of Hindostan, Greece, Rome, and those of the middle ages, down to modern times, the combs in the hive were always fixed, hives with moveable combs being unknown. To John Dzierzon (born at Lobkowitz, in Upper Silesia, on the 16th January, 1811; Catholic Priest at Carlsmarkt, Silesia, from 1835 to 1869, and since retired into private life) the credit is due of having introduced the bee-hive with moveable combs. In handling a moveable comb, he soon discovered that queens frequently laid drone eggs only, also that the worker bees were able to raise a queen from an egg deposited in a worker-cell by supplying it with royal food. He further noticed that queens which had not left the hive for their so-called wedding trip, only laid drone eggs. Dzierzon said to himself, These queens are parthenogenetic, but since they have not been impregnated, they only lay drone eggs. Dzierzon also ascertained that drone eggs are unfertilised eggs, while worker eggs have been fertilised, and that worker bees are simply imperfectly developed females, for which reason it is possible to raise a queen from an egg or maggot of a worker bee. Dzierzon came to these conclusions by exact and careful observation.

At his request Professor Siebold undertook to prove the correctness of the theory of parthenogenesis. Siebold examined a number of queens in Dzierzon's apiary, and found that the spermatheca was in some cases filled, and in other instances quite empty. The eggs were also subjected to experiments, and it was shown to demonstration that each worker egg has a small opening, called a micropyle, at its upper end. The eggs in the oviduct were always found with this opening turned upwards. A fertile queen, however, instinctively knows whether to lay female eggs for queens and worker bees or male eggs for drones, as in the former case the muscles of the spermatheca have to be brought into action in order to allow a few spermatozoa to escape, and through the micropyle to pass into the egg. In freshly-laid eggs for worker bees, the spermatozoa, when examined under the microscope, were seen to move; in drone eggs, however, there was never a trace of any spermatozoa. In addition to the bees placed at Von Siebold's disposal by Dzierzon, he also had a supply sent him by Von Berlepsch.

A further proof in favour of parthenogenesis in bees was afforded by the introduction of the Italian bees into Germany. The latter are somewhat prettier than the German race, having gold-coloured rings on the abdomen. It is also asserted that they are more industrious, and not so irascible as the native German bees. Bee-keepers who procure colonies of the new bees very soon notice that, although in the second generation the drones remained of the genuine Italian kind, the queens and worker bees again resemble the German bees. When a young Italian queen leaves the hive to mate, while also a number of German drones are about, she may happen to meet with one of these, and become impregnated by it, in which case her offspring will be hybrids, the drones alone being true Italians. An unimpregnated Italian queen likewise produces only true Italian drones. The capability of breeding true Italian drones is thus seen not to depend on the fecundation of the queen. A third proof was furnished by Von Berlepsch, who put into an ice-cellar three properly impregnated queens which had commenced laying worker eggs. Of these three queens two died, and when the spermatozoa from the spermatheca of the latter were examined, they were found to be motionless. The third queen, which recovered, became a drone-breeder, and when killed and dissected, the spermatozoa from this queen were also found to have lost the power of motion through exposure to the cold, for which reason she was henceforth only able to lay drone eggs.

A similar kind of parthenogenesis is met with in wasps. Late in the summer we find both male and female wasps, but the males die, and the fertile females alone winter in well-protected hiding-places. In the following spring each queen builds itself a nest, in which at that time we only find the one fertile female, which has survived the winter, and a large number of infertile female moths, the offspring of the single queen. These descendants of the old queen assist her in building the nest and looking after the brood. Male wasps do not make their appearance until the beginning of August, by which time the queen has probably exhausted all the spermatozoa stored up in the autumn of the previous year. If we remove from a colony of wasps all the eggs as well as the queen, leaving only a few females, it will be noticed a short time after that there are eggs in the cells, but these eggs only produce male wasps, showing this to be a case of parthenogenesis almost analogous to that met with in bees.

Parthenogenesis of a like kind has lately been discovered in another class of wasps, especially in Nematus ventricosus and also in the Aspidostrana (*Apus*). Until 1857 it was believed these were all females, but in spite of the males having since been discovered, it has

been ascertained by careful investigation that in these cases also unimpregnated females produce offspring which are of the male sex exclusively.

From these few examples of parthenogenesis it will be seen that this kind of reproduction is probably far more extensive than has generally been supposed. Dzierzon's opinions and his investigations have been fully confirmed by practical bee-keepers all over the world, who, in doing so, have not merely rendered a service to abstract science, but have largely benefited themselves, for a knowledge of the conditions of bee-propagation has rendered it possible for bee-culture to be raised to its present high state of perfection.—*Translated from the Schweizerische Bienenzeitung, November 5th*, 1888.

ASSOCIATIONS.

NORTH-EAST OF IRELAND BEE-KEEPERS' ASSOCIATION.

On Friday, March 8, the annual meeting of this Association was held in Mr. Cunningham's offices, 41 Waring Street. Rev. H. W. Lett, vice-president, was called to the chair, and the attendance was large.

Mr. Paul M'Henry, secretary, read the report of committee, which contained the following:—'The Association continues in a flourishing condition. The annual show was held on the 17th August last in the Young Men's Christian Association Hall, and was fairly well attended. The show of honey, although small, was very creditable, the hives and appliances were very good, and great interest was shown in this section. The judges were—Rev. J. L. Seager, of Stevenage, Herts; Rev. J. B. Robertson, Leswalt, Stranraer; and Mr. A. Morris, Rosetta; and we are glad to say their decisions gave general satisfaction. Mr. Seager expressed himself highly pleased with the exhibits and the progress which apiculture was making in the North of Ireland. The committee regret there was no competition for the prizes offered by the Association for papers on "Bee-keeping," none having been received. We are, however, pleased to report that one of our members—Mr. R. I. Caldwell, C.E.—has recently given two lectures on "Bee-keeping," illustrated with diagrams and slides, which were very successful and well attended.'

Mr. Samuel Cunningham, treasurer, submitted the financial statement, which showed a balance of 25*l.* odd to the credit of the Association.

The Chairman thought the report which they had just heard was on the whole a very satisfactory one. The attendance at their meeting that afternoon, and the conversations he had had with several gentlemen in Belfast, gave him every encouragement, and indicated that their Association was living and prospering. Bee-keeping was a species of industry that was well suited to the social hive of industry which this city presented. The people of Belfast had made it what it is, and the great cause of their success was their God-fearing and law-abiding character. The progress of this city was an instance of the truth of the old saying that nothing succeeds like success, and he would recommend that as the motto to be kept before them. There was one thing, however, they must remember, namely, that if they wanted to succeed in anything they must be determined and enthusiastic, and resolve that, no matter what difficulties they might meet, they would overcome and subdue them. He had experienced bad years since he began to keep bees in bar-frame hives, but last year he could say, without fear of contradiction, was the worst for honey in the north of Ireland he had ever known. When they spoke of bad years they should afterwards try to forget them, as they were past and gone, and endeavour to establish confidence in themselves that they would ultimately succeed. All bee-keepers knew the effect of a bad season, and they need not be faint-hearted and keep growling and grumbling, as they could not have it all their own way; they could not always have a large produce, nor procure a big price. He thought producers should be satisfied with a moderate, regular price. He observed from a return that at present there were 9243 colonies of bees in Ulster, and of these 3197 were in moveable hives. He expected 1889 would be the best year the Association had yet had, but, in order to take advantage of it they must be prepared on three points. They should not forget the prize offered for a lecture on the subject. They should keep the fact before the public. They should keep the competition open, and receive papers up till the 1st June, or the date of the holding of the first show in which they were interested. In addition to these, they should study the bee periodicals, and be also provided with all the necessary appliances for bee-culture. And, lastly, they should not only take an interest in the work of the Association, but endeavour, by bringing in new members, to increase its usefulness.

The Rev. Robt. Barron moved the adoption of the report, which being seconded by Mr. J. Rainey, was agreed to.

On the motion of Mr. A. W. Child, seconded by Mr. J. Gilliland, the treasurer's report was adopted.

Mr. J. H. Ferguson moved the appointment of the office-bearers for the ensuing year, which was seconded by Mr. Lockhart, and passed.

Mr. Child moved a vote of thanks to those who had kindly given donations and special prizes during the past year, who included Mr. Forster Green, the Messrs. Pim, Mr. W. K. M'Causland, the Messrs. M'Duff, Messrs. Malcolmson, and the Rev. J. Hunt.

Mr. T. M'Henry seconded the motion, which was agreed to.

The Rev. Robt. Barron moved that the name of the Association be changed from the 'North-East' to the 'Ulster Bee-keepers' Association.'

Mr. E. Malcolmson seconded the motion, which passed.

The Secretary said that as an annual show could not be held in Belfast without a drain on the resources of the Association, it had been suggested that they should give small grants to other exhibitions in the north of Ireland, such as those held in Armagh, Newtownards, and other places, and that honey should be an item in their schedules.

The Chairman moved a vote of thanks to Mr. M'Henry, the secretary, and Mr. Cunningham, the treasurer, whom he regarded as the backbone and heart of the society, which was passed by acclamation.

A vote of thanks to the Chairman, moved by Mr. T. M'Henry, and seconded by Mr. Lockhart, brought the proceedings to a close.

WORCESTERSHIRE BEE-KEEPERS' ASSOCIATION.

The Annual Meeting of the members of the above Association was held at the Guildhall, Worcester on Saturday, the Rev. W. M. Kingsmill presiding. There were also present Rev. S. Latham (Malvern), Messrs. A. H. Martin (hon. sec.), G. Neal, Bryan (Welland), T. Moseley (Bishampton), C. H. Haynes (Hanley Castle), J. W. W. Boughton (Lower Wick), F. Humphries (Pershore), Rev. E. Davenport (Stourport), and Mr. H. Goldingham (Worcester).

The sixth Annual Report of the Committee deplored the fact that the past season had been one of the very worst on record, and had proved very disastrous to all bee-keepers in the county. There was literally no honey gathered to any extent, the cold and wet summer retarding all operations, and preventing the bees from

working. Arrangements were made with the Worcester City and County Horticultural Society to hold a show of honey, &c., in conjunction with their show on August 2nd last, and a donation was given by that Society amounting to 30*s.*, to defray the expenses of the bee tent; but in consequence of the bad season, the show had to be abandoned, as only two entries of honey were received. The thanks of the Association were given to the Horticultural Society for their offer of help. The bee tent was taken to the show, and thrown open, and in spite of the showery weather some manipulations were performed by the expert, Mr. Davenport, in which a good deal of interest was manifested. The number of members at the close of the year was 130, many having withdrawn in consequence of the bad season, a circumstance which the Committee regretted. The total receipts from membership amounted to 35*l.* 5*s.* 6*d.*, and the Committee congratulated the members that there was a satisfactory balance in the hands of the treasurer amounting to 24*l.* 13*s.* 7*d.* The statement of accounts for the year showed that the income was as follows:—Balance brought forward, 14*l.* 13*s.* 7*d.*; members' subscriptions, 34*l.* 5*s.* 6*d.*; receipts from advertisements, 1*l.*; Worcester Horticultural Society, 1*l.* 10*s.*; total, 52*l.* 9*s.* 1*d.*

The expert, the Rev. E. Davenport, reported that the year which had just closed would be remembered by all bee-keepers as a most disappointing and disastrous one. He had striven, however, to encourage the members of the Society. He advised the judicious use of the feeder, so that if the wished-for glut did come, the bees might be in a fit state to utilise it, and he had reason to believe that the lives of many stocks were spared by attention to that direction. He had visited 119 members of the Society, and found a total of 379 bar-frame hives and ninety-two straw skeps, seven apiaries containing over ten stocks, and eighteen apiaries with from five to ten stocks. He found no signs of 'foul brood' during his spring visits. Swarms were very rare, and only a few bee-keepers in favoured localities were able to secure any honey. On each of his visits he found an increasing desire for information, and a growing interest in the objects of the Society.

With regard to the balance-sheet, the Hon. Sec. remarked that the balance in hand was augmented by a sum of 15*l.*, which was set aside last year for the annual show, and which was not used on accouut of bad weather. He hoped they would have a better season in the coming year. There were several matters which were being talked about now of interest in connection with apiculture. The Baroness Burdett Coutts mentioned, at the annual meeting of the B.B.K.A., that it was proposed to establish a department of Agriculture, in connexion with which it was hoped that apiculture would be taught, and the Baroness was of opinion that in these times of agricultural depression such teaching would have beneficial effects. There was another important matter of which he would remind them. Under the new classification of rates which had been made in compliance with the Act of last year, apicultural produce, hives, and bee-keepers' appliances, were proposed to be charged carriage at fifty per cent more than hitherto, and unless strong representations were made to the Board of Trade, that charge would be made. He was glad, however, that the Central Association had taken the matter up, and that they were going to make representations to the Board of Trade on the subject, which ought not to be lost sight of.

The expert thought all exhibitions of bees should be thrown open; the free exhibition at the annual show at Worcester was a step in the right direction.

The Committee's and the expert's reports and the balance-sheet were adopted on the motion of the Rev. S. Latham, seconded by Mr. C. H. Haynes.

The Chairman moved, and Mr. A. H. Martin seconded, the election of Earl Beauchamp as President, which was carried.

Mr. Haynes moved, and the Rev. S. Latham seconded, the election of the following Vice-Presidents:—The Dowager Lady Hindlip, Lady Georgina Vernon, the Hon. G. H. Allsopp, M.P., Sir Richard Temple, Bart., M.P., Sir E. A. H. Lechmere, Bart., M.P., Sir Douglas Galton, K.C.B., Mr. John Corbett, M.P., the Mayor of Worcester.

Mr. Haynes moved the re-election of Mr. T. J. Slatter, Evesham, as Treasurer, and also a vote of thanks to him for his services.

Rev. E. Davenport seconded the motion, which was carried.

Rev. E. Davenport also moved the reappointment of Mr. A. H. Martin, Evesham, as Secretary, remarking that the present position of the Society was largely brought about by his efforts from time to time.

Mr. Moseley seconded the motion, which was carried.

Mr. A. H. Martin, in replying, said that he had hoped that the Association would be able to find someone who could devote more time to promote its objects than he had been able to do. They knew that his professional engagements were of an arduous and increasing nature, but at the same time he took great interest in the Association, and would not like to desert the ship now it was in somewhat low water. They had passed through troubled times, and the past season had been a bad one, but as it was their unanimous wish he would still continue in his office, and endeavour by all means in his power to help forward the work of the Association, and he sincerely trusted that a better season was in store for them.

On the motion of Mr. F. Humphries, seconded by Mr. Goldingham, the following were elected on the Committee for the ensuing year:—Rev. R. T. W. Brayne, Mr. J. Cleasby, Mr. E. T. Footman, Mr. H. Goldingham, Mr. H. H. Griffin, jun., Mr. C. H. Haynes, Rev. E. W. Isaac, Rev. W. M. Kingsmill, Rev. S. Latham, Mr. G. H. Latty, Rev. C. W. N. Ogilvy, Mr. J. Partridge, Mr. W. E. Williams, Mr. J. Fehrenbach, Mr. F. Humphries.

The Hon. Sec. and Mr. Haynes were chosen to represent the Society at the Quarterly Conference of the British Bee-keepers' Association, and a vote of thanks to the Chairman was afterwards passed and acknowledged.

The winners of the hives at the ballot were Mr. E. Cameron Galton (Martley), and Mr. Frank Gregory (Stourport).

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts* (*see 2nd page of Advertisements*).

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

HONEY IMPORTS.

The total value of the honey imported into the United Kingdom during the month of February, 1889, was 2992*l.*—John Courroux, *Statistical Office, H. M. Customs.*

JOTTINGS BY WOODLEIGH.

[2033.] I am very pleased to see that the 'Proprietor' of *B.B.J.* can at last see his way to reduce the price of the

Journal to one penny. I feel sure that by so doing he will be giving the bee-keeping craft a great encouragement and impetus by diffusing knowledge on the subject broadcast. This reduction will bring the *Journal* within the means of the humblest cotter, and will, without doubt, quadruple the circulation, thus benefiting the advertisers in its pages by bringing the notice of their wares to a larger number of purchasers.

CANDY.—Having tried many recipes for making candy, and not finding any just what I wished, I tried some experiments in candy-making, carefully timing each part of the process, and, being well satisfied with the result, I now give the *modus operandi*. Into a tin saucepan, or brass skillet, put 1½ pints of soft water, and when it boils, stir in 7½ lbs. of lump sugar, and ¼ oz. of cream of tartar. Continue stirring to prevent burning, and when it boils, care must be taken that it does not boil over. Keep it boiling for five minutes, then stand the vessel containing the boiling syrup into a larger vessel with cold water enough to reach up to the outside of the saucepan as high as the contents inside; take, say, twelve large saucers, or basins, place a piece of paper in each, and place them ready to receive the candy; now return to the syrup, and begin to stir with a wooden spoon, or a flat piece of wood will do very well, and stir continuously for ten minutes, by which time it will begin to get thick, and crystallisation will commence; then pour the candy into the saucers, and if any remains, gently warm the vessel, when it will pour out. If pure raw crystallised sugar is used, it will require ten minutes boiling; and if flour candy for stimulating, 3 lbs. of flour, or part pea-flour (Symingtons') and part wheat-flour, can be added when the stirring begins to break grain of the sugar. This makes a beautiful soft candy, on which bees will thrive. The proportions given above fill my saucepan nicely. Larger or smaller quantities can be made to suit according to requirements.

IMPERVIOUS QUILT.—Mr. Webster is very much mistaken if he thinks I intended to cast any reflections on his veracity *re* his note (1998). The matter stands simply thus:—Mr. Webster, as shown by his correspondence to *B.B.J.*, is an advocate, if not a special pleader, for 'impervious quilts;' the consequence is, that anything that bears on his pet theory is adduced by him to carry his point. I have carefully re-read the question and replies as given in *Gleanings*, Feb. 1st, 1889, and cannot find any error in my last jotting (2017). I don't find a 'Smith' in the list at all, and as regards Poppleton's not giving an opinion he says, 'I consider a good chaff-cushion the best covering I know of for any kind of frames, not only during winter, but summer as well.' This is as explicit as it is possible to write in the English language, and also an opinion I can endorse myself after some years of practical experience. The majority of my hives are on the combination principle, made of 11-inch stuff, so that they have sides of body some 3 inches higher than that, top of bars forming a tray in which the chaff-cushion lies very compact.

EXCLUDER ZINC.—I can assure 'J. B. R.' that my advice to discard the use of excluder honey-boards was genuine, and the result of many years' practical experience. I may say that, taking several years' average, and lumping them together, I have not had I per cent of spoiled sections with brood in them; and with one of the largest apiaries in the kingdom run principally for 'comb honey,' I am in a position to speak with some degree of confidence; but then my bees are all English—that may account for it, perhaps, in some measure.—WOODLEIGH.

WIDE ENTRANCES IN WINTER, IMPERVIOUS QUILTS, &c.

[2034.] Are they the right thing? is now the question. I have given this matter a very full trial, and find that the more porous the material used above the frames, the narrower the entrance may be, even down to one inch, but there must be plenty of room under the entire number of frames so that free ventilation may not be interfered with.

With non-porous cloth above the frames, and plenty of room under them, three inches will be wide enough for all strong, well-stored colonies. A greater width can be allowed without harm until February, when the bees in their endeavour to extend the brood-nest must be encouraged by a reduced entrance. In fact, careful attention to the entrance, keeping it as small as possible from the time breeding commences in earnest, will do more than anything, except warm top covering, in maintaining that equable temperature so necessary for the prosperity of the colony.

I have known from fifty to sixty pounds of honey to be carried in through an entrance only half-an-inch wide, without much inconvenience to the bees; but while there is no need to have so small an entrance for either winter or summer, such examples induce us to pause before rushing to the other extreme. With a large *unprotected* doorway, leading directly into the bee-nest, the inmates are subject to cutting draughts which are far more detrimental than simple cold. As a matter of fact more stores are then consumed, and therefore it needs no further argument to show that such increased consumption is carried out at the expense of the vital energy of the bees. Why add needlessly to the usual wear and tear on the animal system, when perfect ventilation can be secured without exposing our little friends to the extreme cold and draughts of winter?

With regard to the use of oil-cloth on top of the frames, I must say it is the most economical article I have yet found for the purpose, and I have had it in use for the past fifteen years. The only thing necessary is to have plenty of warm covering above it to prevent condensation of moisture on the underside, when it leaves nothing to be desired, summer or winter.

It is of no use buying a cheap article, for while costing more than ordinary ticking, it will be cut through by the bees during the first season, whereas the better quality will resist the ceaseless action of their jaws for a number of years. It has already been shown that for the sake of the bees moisture must be avoided by guarding against the action of cold air on the outside, and the same caution must be exercised in our endeavour to preserve the material itself. Keep the sheets dry, and once or twice a-year clean and rub them over with sweet oil. Have the top bars perfectly clean, and so avoid the possibility of the sheets being pressed out of shape, as the bees very soon nibble at sharp corners in this or other material.

It would seem hardly necessary to state that the enamel side should be placed downwards, or immediately in contact with the frames; but some bee-keepers have been doubtful as to which side should be uppermost, and one I was once in conversation with preferred the undressed side next the bees, thinking it was more comfortable for them, but quite ignoring the fact that they would very soon bite holes through as though it were only ordinary ticking.

In conclusion, I would state that it is not so much a wide entrance, nor the kind of material on top of the hive that has to do with the health of a colony in winter: I would rather rely upon plenty of room under the frames; warm, dry covering above; stores sealed not later than the middle of September; and the condition of the colony as nearly as possible that of a normal one before the cold weather is likely to set in. I would prefer the frames end on to the south wall of the hive, and should allow a large entrance only on the condition that it did not directly communicate with the bee-nest, this being the stumbling-block with the many who have been puzzled with regard to the adoption of wide or narrow entrances.—SAML. SIMMINS.

THE BEES OF BORNEO.

[2035.] The genus *Apis*, the honeycomb builders, may be conveniently divided into three parts,—the small bees, the big bees, and the medium-sized bees.

1. The small bees, whose workers are less than three-eighths of an inch in length; their nest is exposed attached to a twig from six to fifteen feet above the ground, it consists of a single small comb, which the bees, when frightened, temporarily forsake. The queen is at once distinguished by the comparatively enormous size of her thorax; the drones, too, are very different from the drones of other bees, the dense velvet down on the thorax being wanting, and the abdomen narrower and more curved, but most curious are the large blunt lobes or pegs on the tarsal segments of the posterior legs, arising from its anterior upper margin and passing downwards, no rudiment or trace of which can be seen in ordinary drones. These bees are found only in tropical Asia and the islands of the Malay Archipelago; owing to their small size they are of no use to bee-keepers or to bee-hunters. Only one species is known, *Apis florea*.

2. The big bees, whose workers are more than five-eighths of an inch in length; these, too, have their nest exposed, and composed of only a single comb, but this a large one, and generally placed on inaccessible cliffs or large unclimbable trees, though occasionally in more accessible places. Owing to the position of their nests and the size of their stings these bees can successfully drive off all enemies by day. They, too, are found only in tropical Asia and the islands of the Malay Archipelago. Owing to the quantity of wax in their large comb, it is highly valued by natives, but these bees are not domesticated. *Apis dorsata* is the common, well-known species found as far eastwards as the Isle of Timore. *Apis zonata* is a little known species, found only, I think, in the Island of Celebes.

3. The medium-sized bees, whose workers are more than three-eighths of an inch and less than five-eighths of an inch in length; their nests are always sheltered in hives, in hollow trees, in roofs of houses, or some such places; they build several parallel combs, they consist of species, varieties, and races, scattered over the whole of the habitable old world.

Apis indica, the smallest and one of the most distinct, is found in tropical Asia and the islands of the Malay Archipelago.

Apis unicolor, small, dark in colour, and distinct from others, is found in Madagascar.

From Africa comes *Apis adansonii;* from Egypt, *Apis fasciata*; from Europe, *Apis mellifica;* from China, *Apis sinensis*. Almost every country has a special variety or race; sometimes these, when brought together, interbreed, but sometimes two can be found in the same country which appear to keep distinct.

Up this Sarawak River are four species of *Apis*:—

I. *Apis florea*.—I saw this bee in Ceylon, it seemed rare in the hill country, but very common near Anuraadhapoora, where, on their nests being disturbed, the bees fled without stinging, so that Cinghalese boys have no difficulty in eating their honey, and Mr. Davison tells me that the same is the case in the south of India; but here, although the bees readily leave their combs, they will sting as well and more effectually than their size would lead one to expect. I have not yet caught a drone here, for the wet season is on, and there are no drones now. The workers of these bees vary greatly in the colour of their abdomen, the most common thing is for the two basal segments of the abdomen to be coloured, and the others black, but in the same nest will be found some without a bit of colour in the abdomen, and some in which nearly all the segments of the abdomen are coloured. Has Mr. Benton been guilty of this atrocity, or will some amateur detective find another culprit in this matter?

2. *Apis dorsata*.—I have not noticed any difference between this bee and the one like it which I saw in Ceylon, except that in Ceylon it was quite absent from the flat country round Anuraadhapoora, but here is common both in the low country and in the hills. The workers usually have the two basal segments of the abdomen coloured, the other segments black, except for a grey band quite at their base; but some workers have the third segment coloured, and some have the whole upper surface of the abdomen coloured. I saw quite a number of these last on a nest I examined through a telescope, but could see no drones, I suppose because it is the wet season, yet swarms of these bees are frequently seen flying overhead.

3. *Apis indica*.—The commonest bee here, length of the worker seven-sixteenths of an inch; these bees do not vary much in the colour of the abdomen, in the majority the scutellum is coloured, but in many it is not. At this time of year there are no drones. The bees do not store much honey, they have no winter to go through, and many enemies, so they prefer breeding and swarming. They are very quiet bees, quieter than two colonies of *indica* which I examined in Ceylon; they can be easily manipulated without smoke, but they readily take to the wing—the queen as well as the workers—so that it is impossible to drive them. Four times I have tried transferring to bar-framed hive, and once the simple removal of the queen, in every case they forsook the hive and all their brood a few days after, but the wet season was on, and the quantity of their brood not large. Amongst the enemies to these bees is a species of *Trigona*, yellow and black, and small in size, this, finding its way through the cracks in a Dyak hive, establishes itself in the upper regions of the comb, builds a wall between itself and the owners of the honey, behind which it eats the honey, leaving the midrib of the comb quite bare, and in places destroying this too. I opened two hives attacked by this small bee, and in neither case did I find any of their brood, but the Dyaks thought they sometimes had brood in the hives, but say that a few months after the *Trigona* comes the *Apis* generally forsake its hive.

4. *Apis flava*.—The proper name of this bee I do not know, so for the present I will use the above name; the workers are at once recognised by their bright yellow colour; their head is yellow, their thorax densely clothed with long yellow hairs, and the ground colour of the thorax is yellow, their length is nine-sixteenths of an inch, slightly larger, I think, than an English bee. The drones are not very yellow, the queen not at all so, she is but little larger than a queen of *indica*. I have examined three nests of these bees, in one were drones hatching and hatched, the drone-cells, though larger than the worker-cells, and furnished with the convex capping, were mixed irregularly with the worker-cells, not together on a special portion of comb. The colonies are small, and not quite so good-tempered as those of *Apis indica*, but with the help of smoke are not difficult to deal with. Whilst manipulating I have noticed *Apis flava* trying to rob from *Apis indica;* and I have seen *Apis indica* trying to rob from *Apis flava*, but I have not seen *Apis dorsata*, or any wasp out here, trying to rob, though *Apis dorsata* frequently comes to drink close to my colonies of *Apis indica*.

Malays, Chinese, Klings, and Europeans, here all give bees a wide berth. Dyaks alone keep them. Their knowledge of their habits is much like that of the old Romans; they talk of the Rajah, though probably few have seen him. The drones they call *badorken*, but have no idea that they are the males, or that the rajah lays eggs.

A nest of *Dorsata* the Dyaks highly value. They eat the brood, but sell the wax, and the honey too, if they can, to Malays, who trade up the river. They take the nests by building ladders up the tree or cliff. Ascending

these on a moonless night, they hold a torch beneath the nest, and drive off the bewildered bees before cutting down the comb. Next day the bees leave the place and try their fortunes elsewhere. There is a right of ownership of nests on favourite trees or cliffs. Colonies of *Apis indica* they keep in hives made of bark, or hollow logs of wood, narrow, but two to three feet long, with the entrance in the middle, suspended lengthwise from the floors of their houses, which are raised many feet from the ground on poles. They take the honey and brood at night, driving the bees out of their hives by means of smoke. Next day the bees leave the place. *Apis flava* they seldom put in hives, for they say it gives less honey and brood than *Apis indica*. *Apis florea* I believe they usually avoid.

The Malays call *Apis florea* 'Peniangat,' a word which is applied to small social wasps also, and is their name for the sting of an insect. The Dyak name is 'Titi,' which is also used for small solitary bees. *Apis dorsata* is called by Malays 'Lanyer;' by Dyaks, 'Bunyee.' Dyaks cannot pronounce L except at the end of a word, so when speaking Malay they say 'Ranyee.' *Apis indica* is called by Dyaks 'Newaan,' or often up other rivers, 'Ranewaan.' The proper Malay name is 'Lebah,' but I have not heard it used here, the Malays commonly using the Dyak name. *Apis flava* is distinguished by Dyaks as 'Newaan pshear' (?), or the 'yellow Newaan.'

I should be much obliged, Mr. Editor, if some of your readers would say in your *Journal* what has been the result of introducing *Apis mellifica* into India.—G. D. Haviland, *Sarawak, January 29th.*

[We must own to some surprise to meet with our former friend at so distant a part of the earth. We are pleased that he has taken with him his love for the bee; and we assure him that we shall be glad to receive further communications.—Ed.]

HIVE WITH SHALLOW FRAMES,

In reply to J. S. Renwick.

[2036.] Several years ago I had two hives made with shallow frames, Broughton-Carr size, 5½ inches deep. I have increased the number by a few hives each year, so that now I have forty such hives stocked with bees. 'Abbott's' top bars are used throughout. I have also hives with deep frames which I super with shallow frames or sections. My experience over several years is that the yield of honey is about the same in one hive or the other during such times as the honey is coming in plentifully, and will be sealed in both alike at such times. But as this only happens with the main crop, and then must be accompanied with fine weather, and also that honey is extracted and sections are removed several times each ordinary season, when honey is only being gathered slowly, I have found, and each season has confirmed, that during such times not only is the honey that would be in the deep frame above the brood forced to be in the shallow frames or sections above, but that by virtue of its closer proximity to the brood-nest it is much better sealed than it is when further removed; and this alone, while it means heavier frames for extracting than unsealed or only partly sealed ones, would be, is especially of vast importance with respect to sections.

My hives are of two kinds, with shallow frames; one has a row of twenty frames in the body, and twenty more go on top for supering; or I super with two crates of twenty-one sections, placed side by side, and, later on, by two more crates. Such a hive cannot hold all the bees during the fall of the breeding season, with the management that I give them, as I push the queens from very early spring to the main crop to their extreme laying powers; so each fortnight, while removing frames for extracting or sections, I remove also a few frames of sealed brood, principally in front of the entrances, of which there are three. The frames being at right angles to the entrances, I fill back with empty comb or foundation, and give the removed frames to nuclei or to needy colonies. My storifying hives are formed of four hive bodies, precisely alike, each containing ten frames, entrance full width, double walls back and front only, while for long hives I have double walls all round, packed with cork dust in both. Two metal slides that rest on the floor-board regulate the entrance that I close to 1½ inch during winter, enlarging to full size as the summer advances.

I have repeatedly noticed the immense progress which a colony makes on being shifted from the single-wall swarm-box to either of these bodies; the cork-dust space round the brood-nest stores the heat of the cluster, and increases the heat area; and while it allows heat to escape less rapidly, it protects the nest very effectually from outside influences of extreme heat or cold, as well as from outside dampness. The crates of sections which I use for the storifying hives contain twenty-eight sections each, and are of the same exact outside diameter as the hive bodies. For these hives each section is simply placed on top of the other, the same way as the octagon Stewartons; a loose cover, three or four inches larger, and ten inches deep, drops over all. For swarms or small lots of bees I use only ten frames in either hive, under sections or super frames.

I discarded excluder zinc several years ago; and although I pile as much as four crates of twenty-eight sections on my storey-hives, in which case I allow them twenty frames, and that I use four crates of twenty-one sections on the long hives, yet I am never troubled with a single spoilt section from mischief by the queen, nor do I get a single natural swarm from blacks or Italian hybrids, and this over a space of several years. About three-eighths of my Carniolans swarm—notably the very best queens working for sections. In that case I divide the hive in two, give ten frames and fifty-six sections to the swarm on a new stand, and the other ten frames and two crates of sections I leave to the stock; both lots continue working well in sections—the stock invariably throws a second swarm, which is just what I want. I divide again, and give five frames to each, replenishing with five fresh ones, and giving them each their crate of sections. I form nuclei also with the best queens that I capture; thus reared in the best conditions. Carniolans crossed with blacks give the largest number and the finest sections, when you know how to manage them.

My section-crates leave only one quarter-inch exact between frames and sections, and a bee-space of $\frac{5}{16}$ all round as well as between ends or rows of sections; and last season, bad as it was, my sections being well protected from above, I realised that bees were a first-class packing, for the two side rows of sections in some of the crates, where bees were crammed around the inside, were better sealed by far than the centre rows or row. Queens during a good honey flow lay in a few centre frames of the top row in long hives, as well as right up the centre frames in the three lower storeys of the storey-hives. I don't mind that, as the adjoining frames are all the quicker and better filled and sealed. Year before last, for four out of five extracts which I made, the frames in the top row of long hives were well sealed, while those in the tall hives were completely unsealed. The honey was equally ripe in either case, but the unsealed frames were much the lightest, otherwise each kind of hive gave about an equal number of frames for extracting.

Now for a few directions. I have all my floor-boards free from the stands. I raise each hive at the back three-quarters of an inch during winter and spring by placing a batten between each stand and floor-board. Bees winter first-class on a single row of shallow frames, from six to sixteen, according to strength of colony, provided they have a propolised quilt and suitable warm porous covering; but I mind my bees so well that I have no experience with bad wintering. I have never lost a single lot during winter, if I except a few which I had transferred extra late autumn before last, and badly covered.

I cannot say one word more, having already gone much too far; but if you want to read me on any special point, ask, and I write. I am preparing a first-class 'treat' for you and your brother readers. I have seldom written, but always sign—PETER BOIS.

BEE-KEEPING FOR COTTAGERS.

[2037.] By request of the Editor, I commence the first of a series of articles for cottagers. That bee-keeping may be the means of benefiting the cottagers—this term includes agricultural labourers—no bee-keeper will doubt; but whether by keeping bees in bar-frame hives or by adopting a modification of that system of management, has not been definitely settled. It is, however, certain that at the present time cottagers do not benefit as they might by the keeping of bees. It will therefore be the object of these articles, in endeavouring to assist that class, to give so much of the natural history of the honey bee as is necessary to enable the cottager to manage his bees intelligently, and then lead him on, step by step, from his present system of skep management to the summit of a bee-keeper's ambition—the keeping of bees in bar-frame hives.

Keeping the cottager always in mind, I shall endeavour, in avoiding a difficult phraseology, to give in simple and clear language such information and instruction as may be the means, if closely followed, of making bee-keeping more interesting and more profitable to the amateur generally, as well as to those for whom these articles are specially written.

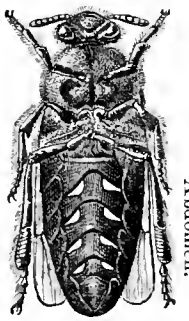
I.

Before we consider how to keep bees in order that they may be a source of profit, we must know something about them, and also about what are called bee-products which we find in the *box, skep, or bar-frame* hive in which bees are kept.

Whatever the bees are kept in is called a 'hive,' and every hive which has bees in it contains a SWARM or a STOCK.

A SWARM is a cluster or quantity of bees with a queen. These leave the hive in the summer time when it is becoming too crowded.

A STOCK is also a quantity of bees with a queen, but they have a furnished home, that is, their hive is filled with COMBS. The COMBS are built by the bees from WAX, which may sometimes be seen on the underside of the body in little scales, coming from under the rings, which cover the abdomen or lowest part of the body of the bee.



Wax Scales.

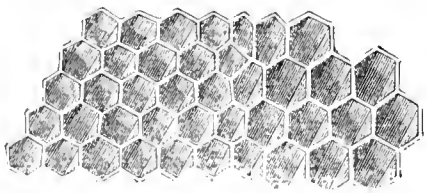
WAX is formed in the body of the bee from honey. It is stated that the bees must eat 20 lbs. of honey to make 1 lb. of wax.

Looking at the comb from either side we can only see halfway through, because there is in the middle of the comb, from top to bottom, a very thin wall of wax called 'a mid-rib.' The combs are about an inch thick, so the six-sided holes called 'cells' are therefore just a little less than half an inch deep, and in them we shall find at different times *eggs, grubs, brood, honey*, or *pollen*.

The combs are about one and a half inches from the mid-rib of one to the mid-rib of the next, so there is a space of about half an inch between the combs. Drone cells are not only wider but deeper than worker cells, so that where there is drone brood (young bees just before they eat their way out of the cell) the space is only about a quarter of an inch.

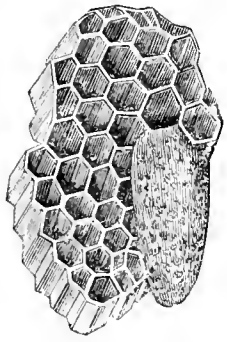
There are three kinds of cells—WORKER, DRONE, QUEEN.

WORKER-CELLS are the small cells in which worker bees are produced from worker eggs. Measuring across the cells they are five to the inch.


Worker-cells. Drone-cells.

DRONE-CELLS, in which drones are produced, are a little larger; they measure four to the inch.

QUEEN-CELLS are pear-shaped. They are generally found on the edges of the combs, hanging downwards, and they are only found in the hive when the bees are rearing fresh queens before swarming, or when they have lost their queen.


Queen-cell.

A stock will have in it, at most times of the year, HONEY, POLLEN, and PROPOLIS.

HONEY is a heat-giving and fat-forming food. It is the winter food of the bees. In the spring and summer, when they are working hard, they eat with it pollen.

POLLEN is the dust found on male flowers, which must be carried by the wind, or by bees or other insects, to the female flower, or fruit will not be produced. To the bee pollen is a strength-giving food. Honey and pollen mixed, and partly digested in the body of the nurse bee, is the food of the grubs.

PROPOLIS is a kind of gum which the bees gather from trees. It is not stored in the cells, but used to stop cracks and crevices.

BEES.

If we examine a *stock of bees* early in the summer before it has swarmed, say in May, we shall find one

Queen (female). Drone (male). Worker (neuter).

queen, a few hundreds of drones, and several thousands of workers.

The first bee we must notice is the Queen. She is the only female in the hive, and she is the mother of all the other bees, for she lays all the eggs which produce QUEENS, WORKERS, and DRONES. She is thought a great deal of by the bee-keeper, because his success depends upon whether she is a good one or not. She is easily known from either drones or workers as she has a much longer and more tapering body, and her wings do not cover the tapering or pointed end of her body. Her only duty is to lay eggs. Although from her eggs come three kinds of bees she only lays two kinds of eggs. One kind will produce worker-bees or queens, and the other only drones.

Queen (female).

If we carefully examine a hive now (March 1) we shall find that the queen has commenced her duty of egg-laying, but all the eggs she lays for some time will be placed in the small worker-cells, and from these will come, in twenty-one days, worker-bees.

When, by the hatching day by day of scores, and soon hundreds, of bees, the hive is becoming full of worker-bees, the queen lays eggs in the larger or drone cells, and from these come, in twenty-five days, drone bees. There is only one difference between these two kinds of eggs. In the body of the queen, by the side of the passage down which the eggs pass, is a small sac or bag, containing the matter which was received when she mated with a drone when she was a few days old. Now if an egg is to be placed in a worker-cell or a queen-cell to produce a worker-bee or a queen, it receives a small quantity of the matter stored in the little sac; but if the egg is to be placed in a drone-cell to produce a drone, it does not receive any of the matter in the sac, hence it is said that a drone has no father.

When warmer weather arrives, and the hive is becoming full of workers and drones, queen-cells are built on the edges of the combs, and in each of these the queen lays an egg exactly like the eggs which she lays in a worker-cell, but when the egg is hatched the grub has more room than a grub in a worker-cell, and it receives a larger quantity and a much richer food than the other grubs. With this special food, and the greater space, a queen is produced in sixteen days.

It will now be understood how, when a queen is lost, and there are worker-eggs in the hive, the bees can provide themselves with another. To do this the bees build a queen-cell over the cell containing a worker-egg, and, when the egg hatches, the grub is treated just as if the egg had been laid in a queen-cell. If, when the bees lose a queen, they take grubs instead of eggs, they may have a queen in about twelve days from losing the other.

Queens go out to meet a drone when they are four or five days old, and when they are successful they will generally be found laying the next day; and they will not leave the hive again for the rest of their lives, unless they go with a swarm.

Queens live four or five years, or even more, but they are of most use to the bee-keeper when two or three years old.—C. N. White. *Somersham, Hunts.*

(*To be continued.*)

BEE CANDY AND HOW TO MAKE IT.

[2038.] 1. Use preferably a brass jelly or preserving pan, otherwise an enamelled tin or plain iron one. 2. Put in 10 lbs. white granulated sugar, at 2*d.* or 2½*d.* per lb., 2 pints (imperial) of cold water, and half a tea spoonful of cream of tartar. 3. Set on or hang over a brisk fire, and stir gently now and then till the sugar is all melted. This should require about fifteen minutes. 4. Almost immediately afterwards the whole will reach the boiling point, at first throwing up a deal of froth. The fire may be moderated or the pan withdrawn a little at this stage, when the foaming boil will settle down to a clear crackling one. This boiling should only occupy about two minutes. 5. Now try a drop—let fall on a cold surface, withdrawing the pan from the fire in the meantime. If the drop at once begins to set, so that in a few seconds it will draw out as a thread when touched with the finger, the mass is cooked enough. If not, boil a few seconds longer and try again. 6. Remove the pan from the fire and set it in a trough of cold water. It may be left there for a few minutes while the moulds (flat or soup plates will do) are being set ready, each with a thin sheet of paper, rather larger than the mould laid in. Returning to the pan, commence and continue to stir briskly until the mass begins first to get dim in colour from incipient granulation, and then to thicken to the consisteney of thin porridge. Then pour into the moulds, warming any remainder slightly to get it to leave the pan. This cooling and stirring process should take about fifteen minutes more. 7. Thus in about thirty-two minutes we finish the whole process, with the result that we have 12 lbs. candy from 10 lbs. sugar. The cakes should set within an hour so as to be safely turned out of the moulds. When quite cold they should still be soft enough to be easily scratched into with finger-nail, and to melt in the mouth with a soft grain. 8. Invert them over the cluster of bees, with the paper left on, and cover up warmly. This may be done while they are still somewhat warm.—W. R.

Echoes from the Hives.

Louth, Lincolnshire, March 15th.—The season 1888-9 is the worst in the memory of any bee-keeper in this neighbourhood. I have found it very difficult to prevail upon old-fashioned skeppists to feed up their bees, and several who fed up their swarms have lost them, I believe, chiefly for want of pollen to keep up the breeding; the weather was so wet and cold during the months of July, August, and September. I held an inquest to-day over a swarm I supplied in June—five and a half pounds with a young queen, with plenty of sealed syrup (ten pounds or more), but not a particle of pollen. I find soft candy with pea-flour a good thing this season.—H. O. Smith.—P.S. If your correspondent 'B. P. Keswick,' would fit his sections up with only a start of super foundation, and fit them properly in crates and not use exeluder zinc, I think he would get more good sections filled than by using it. The year 1887 I never had any brood in sections, and took fifty to sixty pounds off. Some new swarms I have found it a great hindrance to the bees working.

Wigton, Cumberland, March 16th.—I took nearly 250 lbs. of honey from my seventeen stocks last year, and they are all alive yet; but I hear of fearful losses in this neighbourhood.—J. H.

Royal Berks Apiaries, nr. Newbury, March 16th.—Bees on the wing every day during past week, busy working the artificial pollen provided for them in suitable receptacles; also visiting the water troughs in large numbers. Serious losses among the cottagers, some having lost *all*, others only having one left out of five or seven (Berkshire skeppists believe in an odd number of hives for stock). Members of our Association have had a few losses, but nothing in comparison to those who have held aloof and would not join, thus showing the advantage of belonging to an Association. Even in a poor season like the last, this coming year we hope to solve the problem in Berks how to find a market for members' honey at a fair price.—W. Woodley.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

Wallis.—*Uniting.*—Commence shifting the hives towards each other about a foot each day that the bees are flying. Then when close, side by side, on a warm, quiet day (say) at end of March or beginning of April, unite, destroying the queen considered of least value, and leaving one hive only.

T. B.—*French Newspapers.*—*L'Apiculteur* (edited by M. H. Hamet), Paris. *Bulletin de la Société d'Apiculture de la Somme* (Amiens). *Bulletin de la Société d'Apiculture de la Gironde* (Bordeaux). Also, *Bulletin d'Eure-et-Loire* and *Bulletin d'Alsace-Lorraine*. *Bulletin d'Apiculture pour la Suisse Romande* (Nyon). *Le Conservateur des Abeilles* (Tours).

H. Livermore.—You may use with perfect safety the old combs containing sealed food for spring feeding, after brushing off the mould there has collected on some of them. The unsealed honey would possibly cause dysentery, and it would be preferable not to use it for feeding. The combs being old had better be melted, and freed from all impurities by being strained into any vessel or dish having a smooth surface. When cold, any dirt found at the bottom of the wax should be cut off and the wax re-melted.

Beeswing.—We are glad that the reduction in price of the *Journal* after July 4th meets with your approval. Your prepayment to the end of the year can be very simply arranged by our publisher.

D. Matier.—*Syrup.*—The sample of syrup will be serviceable in a few weeks' time. For the present it is rather too thin.

J. B. Butler.—Your letter has been forwarded to 'X-Tractor.'

JoRoLo.—*Spring Feeding.*—If your bees have enough stores, there is no necessity for feeding them. The advice to feed bees presupposes that stores are getting short in hive, and that the bee-keeper is desirous of getting full advantage in stimulating brood-rearing early in the season. If honey is plentiful in the hive, rapid development may be encouraged by uncapping some of the sealed cells every few days with a knife, and permitting the bees to help themselves as they require food.

T. Jones.—*Transferring.*—Allow the skep to swarm, and twenty-one days afterwards transfer combs and bees from the skep to the bar-frame. For mode consult Cowan's *Guide Book*.

Nil Desperandum.—*Glass Sections.*—We have not yet seen the glass sections mentioned by Mr. Chitty, neither have they been advertised in our columns. We believe that the sections ordered by you will be delivered at no distant day if you again, at our instance, write to the manufacturer.

A. Z.—Please refer to reply to 'O. L.' in last week's *Journal*.

Received from Mr. H. Dobbie, Hethersett, Norwich, his Select List of Herbaceous and Alpine Plants.

SHOWS TO COME.

BEES, HIVES, HONEY, ETC.

June 24-29.—Royal Agricultural Show at Windsor. Entries close May 1st. Secretary B.B.K.A., J. Huckle, Kings Langley, Herts.

Business Directory.

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Edey & Son, St. Neots.
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Howard, J. H., Holme, Peterborough.
Hutchinos, A. F., St. Mary Cray, Kent.
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Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
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FOREIGN BEES AND QUEENS.

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Communications to the Editor to be addressed 'STRANGEWAYS PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.'

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Editorial, Notices, &c.

HOPE ON, HOPE EVER.

Doubtless many of our readers will have been driven almost to the verge of despair by the exceptionally bad season that we all participated in last year, more especially as its predecessor was in many places a failure also. To such disheartened friends we would offer words of encouragement and hope.

Though last summer was as unlike summer time as can well be imagined, yet we were gladdened by an autumn of exceptional ripening power, and consequently there is a good prospect of abundant bloom for our bees this spring. The winter has not been severe enough to keep the bees in for a very long period, and consequently the consumption of stores has been rather heavy; but judging from reports to hand, stocks are in excellent condition where proper attention has been paid to autumn feeding. Just here we would again impress upon our readers the fact that the care bestowed in the autumn is the real germ of the next summer's success. Bees which are worried and annoyed by late extracting, and subsequent feeding up, will never do so well the following season as those which have had these necessary operations concluded by the third week in September. The queen will have kept up the strength of such a well-tended stock, and then ceased laying early, so that the young bees commence the winter strong, and with their vigour undiminished by nursing in October, and perhaps later. We frequently hear the remark that bees in skeps winter better than those in frame hives. This apparent difference is not to be taken as a settlement of the argument of frame-hives *versus* skeps. As a rule, close inquiry will show that where stocks in frame-hives have not wintered well, it is the fault of the bee-keeper. Good bees, *good hives*, and GOOD MANAGEMENT, are the necessary essentials to ensure success. Over these three things we have absolute control, and we should see to it that we secure the best bees, *the best hives*, and THE BEST MANAGEMENT; then, if it pleases the Great Architect of the Universe in His Omnipotent Wisdom to favour us with favourable weather, we shall obtain such success that will more than repay us for any care we may have exercised. One thing is certain, that the negligent bee-keeper can never benefit so much by a good season as the careful one.

The vexed question as to the best variety of bees is still unsettled, but there appears to be a considerable consensus of opinion in favour of a cross between a Carniolan drone and a black (British) queen. This variety are credited with being most industrious workers, frequently out when blacks would not be on the wing, very gentle; and although their capping is not so pearly white as that of the blacks, still with care on the part of the manipulator some excellent sections may be obtained. The queens are exceedingly fertile, and no difficulty need be experienced in getting all stocks up to full strength by the time of the first honey flow. We would offer one word of caution here. Owing to the entire absence of control over the mating of bees great diversity arises among queens raised from the same mother. Occasionally the exact mating occurs which is necessary to produce a race of splendid workers, and if we could only perpetuate this particular variety, as can be done with birds and animals, greatly improved honey harvests would result. In the meantime much may be done by selection. Because we cannot obtain all we desire it would be impolitic on our part not to make the most of what we have.

Hives are more under our control. Against very low-priced hives we would enter our most vigorous protest, for two reasons. If the maker is an honest workman he could not live on the profit arising from this class of hive alone. If in order to make them pay at this price scamping has to be introduced somewhere, then such hives are not a safe investment for the bee-keeper. We do not expect the question 'Which is the best hive?' to be finally answered, nevertheless there are a sufficient variety of hives now procurable at reasonable prices which completely fill the bill. In choosing a hive guard any style of construction which will tend to admit wet or *damp*. The natural *habitat* of a bee is always dry. Avoid any fancy additions which, although they may be considered as adding to the outward adornment, are detrimental to our bees, because they harbour spiders, in whose webs our little friends will miserably perish. No hive should be considered satisfactory that does not permit of being *thoroughly* cleansed and disinfected. The packing between the walls should be easily re-

moved, otherwise it may be found impossible to retain the hive, and at the same time get rid of foul brood. Ease in manipulation and ready adaptation to the varying needs of the colonies are also points of vital importance.

Thus far it will be seen that bee-keepers have been dependent on others for their success, but now presuming that the best bees and the best hives have been obtained the fortunate owner has to rely upon his own personal efforts to get the most out of them by the aid of the best management.

Undoubtedly this is an age of which Solomon might have truly said, 'of making books there is no end;' therefore, although we strongly advise our readers to study the subject well from a theoretical point of view, still we cannot too strongly assert that in this, as in every other occupation, it is practical work that wins. By all means read as much as possible on the subject, but *hasten slowly* in adopting any new or *newly-dressed* theory. We would not unduly decry theories, but their real mission is to stimulate inquiry, not to supersede well-proved practice. Be quite in time with every operation in the apiary. This will make the work much easier and pleasanter to the bee-master. Different situations require very different treatment, therefore keep notes of your principal operations; and having found a system which suits your locality, be very chary of introducing any very great variations therefrom. Should any of your neighbours be less successful than yourself, remember that from others you gained your knowledge, and accordingly consider it an honourable duty to freely communicate your successful system to all in need of it.

Like our bees we depend on combination for success.

In conclusion. Extract early, feed early and well, keep warm and dry in the winter, do not over-manipulate, and let every duty be carefully performed in due season; and despite bad weather our readers will find sufficient satisfaction in knowing they were prepared for a good harvest which will enable them to continue to hope on, hope ever.

USEFUL HINTS.

The weather of the last fortnight has been most changeable—snow-showers, wind-storms, frosty nights, and at times, few and far between, hours of fitful sunshine. The bees have had no chance of flight, except on two occasions for an hour or two, neither has opportunity for examination of colonies offered. It behoves all bee-keepers to be on the alert for ascertaining the condition of their colonies, by the usual spring inspection, whenever the weather affords a chance. But it is better to wait for a few days than to examine in cold, unsuitable weather.

Work in the Apiary, from the present time until winter preparation comes round again, will not be wanting to most enthusiastic apiarists, such as the preparation of hives and cases of sections, or surplus boxes for holding shallow frames for extracting purposes. Tidying the apiary, painting hives and covers, and planting for the bees may well occupy attention. Borage, one of the best of bee-plants, should be sown now. Every spare corner in the garden should be thus utilised. Limnanthes Douglasii, wallflowers, thyme, knotted marjoram, figwort, viper's bugloss, and many others, should now be sown or planted.

Preparation.—

> 'O raise me then, poor bees, that work all day,
> Sting my delay;
> Who have a work as well as they,
> And much, much more.'

Thus sang the good George Herbert, nearly three centuries ago, on the subject of 'Praise.' The sentiment, however, applies to delays of all kinds. In our favourite pursuit it is most important that all things should be done at the proper time, that there should be no 'delay'—no putting off until to-morrow the work which can be done to-day. One day's compulsory fasting may destroy a populous colony, and so on as regards other matters. 'Let all things be done decently and *in order*' was the advice of a greater authority even than good old Herbert. And what an instance of 'Providence' does the latter author bring under our notice in the lines—

> 'Bees work for man; and yet they never bruise
> Their master's flower, but leave it, having done
> As fair as ever, and as fit for use:
> So both the flower doth stay and honey run.'

Much more he might have added on the work of fertilisation performed by the bee!

Disturbance of the Brood-Nest at this early period, whether to gratify curiosity or to 'spread the brood' is to be deprecated. Additional combs may be given on either side of the nest, for supplying food and space (or both), but the nest itself should never be divided, not even by skilful experts, at this early season. The following American authorities deprecate the practice,—Prof. Cook, Messrs. Miller, Demaree, Brown, Hutchinson, Heddon, Pond, Newman, and others. Our reasons for giving this advice may be found *in extenso* in *B.B.J.*, vol. xv., p. 117. Further experience simply confirms the opinions there set forth.

Change of Hive at this period is of great benefit to the bees if the hive in which they have wintered is soiled and damp. Towards the close of the afternoon of a fine warm day take a clean, dry hive, with its floor-board, and place it on the stand of the colony to be transferred, setting the latter beside it. Draw the carbolised cloth over the frames as the quilts are removed. Uncover the outside frames, one by one, gently withdraw them, and place them in the same position in the empty hive as they occupied before removal. When the brood-nest is reached, place two strips of wood, one at each end, under the projecting top bars (*i.e.*, the 'lugs' or 'ears') of the frames containing the bees and their nest, and raising it as a whole, transfer it to the new hive, and cover up warmly with plenty of quilts and wrapping. Five or six frames, covered with bees and full of brood, may be thus removed from one hive to the other without breaking up the nest, and with very little disturbance of the bees, if carefully handled. At the same time stores should be looked after, and, if short, food in the shape of sealed combs, candy, or syrup must be supplied. If division-boards are used they should be closed up, on both sides, to within one comb of the nest, thus leaving the two outside combs as a store-house of food, and for the future reception of brood.

Stimulation in early districts, such as the county of

Kent, with its fruit orchards, and unlimited abundance of cherry and other early bloom, must soon begin. Six weeks are required to bring a colony up to its full working status after the long winter's rest, so that 'building up' should begin with the month of April if honey is to be stored in quantity by the second week of May. The same rule will apply to most of our southern counties, where honey-yielding plants bloom earlier, and are found in greater abundance than in the Midlands and colder North. 'In the month of March,' Mr. Langstroth tells us, 'if there should be a pleasant day, when bees are able to fly briskly, seize the opportunity to remove the covers, carefully clean out the hives, and learn the exact condition of every colony.' By carrying out the plan recommended above, all this may be done —done quickly but quietly—with great advantage to the bees. In the month of April much pollen is usually gathered, and in early localities a little honey; the brood-nest is extended and brood rapidly matures; hence there is a great demand for honey, and in a prosperous colony the consumption becomes greater day by day. If, therefore, the supply is deficient, breeding will be checked, brood will perish, and the whole colony may die of starvation. Regular feeding in moderate quantity will, on the other hand, stimulate to increased breeding and the advancing prosperity of the colony. Those who have been so fortunate as to bring their bees safely through the winter will not begrudge the small amount of expense and labour entailed by carrying out the above suggestions.

'Contraction,' says Mr. Simmins, 'has long been practised by bee-keepers, but it was left for Mr. J. E. Pond, jun., of America, to reduce, the plan to a system. He shows that stock combs may be crammed with brood to the almost total exclusion of honey if the frames be spaced only ¼ in. apart when sections are put on, the latter receiving the entire crop. With no honey and no drones below, the bees are less inclined to swarm.' Closely connected with this subject is Dr. Tinker's plan of preventing the storage of honey in brood-chambers, which we gave *in extenso* on page 27 of the present volume, and to which we again refer our readers as worthy of careful study and trial during the forthcoming season.

Shallow Frames.—The most perfectly worked combs of surplus honey we ever saw were produced in frames 4 in. deep by 14 in. long. These frames were 'close-ended,' 2 in. downwards from the top-bar, and consequently, when wedged up tight, hung perfectly vertical. We never saw a finer quality of honey, nor more perfectly finished comb, in the finest display of prize section honey at any of our own first-class shows than that contained in these frames.

Excluding Honey-boards.—Mr. Cheshire's opinion of these boards may interest some of your readers who have not ready access to his *Bees and Bee-keeping*. In Vol. II., p. 505, he says: 'The danger of the queen entering the section-crates has convinced most producers of comb honey that an excluder of some kind is, at the worst, the least of two evils. Opinions respecting the effect of an excluder are diverse, some stating that it considerably decreases the amount of honey, others that it makes no difference. It is impossible, of course, to dogmatise here, and comparison is impracticable; but I can conceive of no reason why the amount of honey should be lessened, except that it is likely by its presence to somewhat disincline the bees to adopt the sections, since it tends to isolate them from the main body. The excluder, however, is of practical value in that it prevents any disturbance of the frames in tiering up, and also gives most helpful control over the size of the brood-nest.' Professor Cook, in the last edition of his *Bee-keepers' Guide*, when describing the Heddon excluding honey-board, remarks: 'No one after using this will do without it, I am sure.'

ESTABLISHING OUT APIARIES.

In American *Gleanings* a series of articles are contributed by Dr. C. C. Miller on the above subject. With the large apiaries that we read of in America, where usually 200 or 300 stocks are grouped in one apiary, no doubt the system of fixing on out apiaries is requisite for successful bee-culture. We have the opinions of many able bee-masters, who say that it is not possible to overstock a locality—or, at least, it has never been done —with bees. In this country the establishment of bee-farms has never been attempted on so large a scale as in America, and the bee-flora is too sparse to warrant anyone going in for it as they do; nevertheless, my opinion is, that out apiaries are also necessary here for practical bee-keeping. The organization of bee-clubs has now become with us universal. In each village or district may be found a group of bee-keepers who will average amongst them 130 stocks of bees, though each one of them may not keep more than ten hives. I can point to at least three such places in my own county. Should, then, a bee-keeper residing in any of the above-mentioned districts decide on keeping fifty more stocks, it is imperative that he must look out for 'fresh fields and pastures new.' I have for a number of years had an out apiary in use on a small scale, consequently I feel able to give an opinion regarding these. The disadvantages in adopting this system are: (1), There is a little more expense in management, if we take into account our time; (2), the risk of losing a swarm occasionally, or of having a stock robbed before our visit there could check it. The advantages depend greatly on where the bee-keeper resides, but there is no gainsaying the fact that many bees lose their lives by being too near civilisation. Greenhouses, jam factories, telegraph wires, and many other things, are veritable traps, dangerous to bee-life, so that in locating an apiary all these may be guarded against. I have many times advised persons living in large towns to start bee-keeping as a profitable pastime. By renting a small plot of ground in the country, convenient to get to by rail or boat, and having a few stocks located there, one could devote his spare hours and holidays in looking after them. What a pleasant change it would be for the hard-worked artisan or shopkeeper! In fact bee-keeping as suited to the town citizen should receive more attention, and on this subject I may have something to say at another time. To the expert who determines on having an out apiary established, I would recommend him to adopt the travelling bee-house system mentioned at page 66 of *B.B.J.*, and which the Editor kindly favoured us with a drawing and particulars of at page 85 as practised in Germany.—W. McNally.

LECTURING TOUR IN BERKSHIRE.

The Berkshire Bee-keepers' Association have engaged Mr. W. B. Webster to proceed on a fortnight's lecturing tour through that portion of Berkshire lying between Reading on the east and Wiltshire on the west. The lectures will be illustrated by dissolving views and appliances. A large number of lantern slides, which have been specially painted for this Association by an artist who has in them produced the finest physiological illustrations of the honey-bee on glass, chiefly from drawings supplied by Mr. Cheshire, will be shown at each lecture; which, together with Mr. Webster's known capabilities as an exponent of the art of bee-keeping, will render the gatherings not only exceedingly enjoyable but very instructive. Among the towns and villages to be visited we note Abingdon, Farringdon, Lambourne, Steventon, Hungerford, March, Baldon, and others.

YORKSHIRE DISTRICT ASSOCIATIONS.

We are glad to announce that the formation of branch associations in this important county is being prosecuted with some vigour, and there has recently been organized the Knaresboro' and District Branch B.K.A., mainly through the exertions of Mr. G. H. Tordoff, Knaresboro'. This is now the fifth district association formed in Yorkshire during the past two years, each of which is in a flourishing condition, growing, and doing good work. Arrangements are being made with the secretary for the county (Mr. R. A. H. Grimshaw) for a lecture to be delivered by him at an early date.

ESSAY ON THE ORIGIN OF HONEY BEES.

C. J. Robinson.

Assuming that all of the different varieties of bees of the restricted order called *Apis mellifica* are the lineal descendants of one created pair—I ignore hypothetic parthenogenesis—where was the birthplace of the original male and female, drone and queen? The hive honey bee is scientifically known as *Apis mellifica*, the former designation (*Apis*) is that of its genus, and the latter (*mellifica*) of its species. There are other species of *Apis* possessing like attributes of gathering honey, but the restricted *Mellifica* family is to mankind *the par excellence* honey bee.

The notion entertained generally that bees as well as plants are indigenous in the country or locality where any certain difference exists is very vague, utterly erroneous, and the student should investigate to learn something of the traits of the antique bee, its nativity, and attributes, in the beginning to the end, he may have a correct idea of its sphere or circuit of action assigned it by the Creator.

The date when honey bees first existed is wholly unknown and past finding out, and their first appearance on the globe has not been explained in history. No indications of the existence of bees have been found in the rocks of the cretaceous period, nor have the fossil remains of bees been discovered in rock or earth deposits of any period.

It would be rash to speculate as to any certain period in the past, claiming it to have been covered with the creation of the honey bee family, yet the editor of a bee journal, in an address before a convention of bee-keepers, said: 'No historian has transmitted to our day a description of the rude hive provided for the bees Noah carried into the ark. . . . There, too, in Adam's Eden home, revelling in the precious nectar yielded from the glory-clad hills, shrubs, and flowers, was the little busy bee, with its joyous hum and rapid flight.' This genesis is recorded by one who is well known to have been of doubtful authority as a law-giver in bee matters, but compensating rhetoric enlivens a bee convention in the West. Readers of the Old Testament have not entertained the idea that the Garden of Eden was a cluster of 'hills' overgrown with shrubs, and that the *hills bloomed*, as expressed by the editor. Perhaps he fancied the hills bloomed with a blush of glory, but bees could not utilise such bloom. If it be true that Adam was a bee-keeper among the shrub-covered hills the business is the first occupation known to man, and if that Eden home can be found—otherwhere than in the fertile brain of imagination—Messrs. Jones and Benton might abandon search for the elephantine honey bees in India, and Benton hie away to the 'glory-clad hills,' and hither send us the kind of bees that gather nectar from 'hills' as well as from flowers.

The busy bee seems to have claimed greater interest from the ancients than they acquired in modern times. It is certain, however, that the great interest taken in bees from the earliest times is reviving among us with no common force since the publications of John M. Weeks, Father Quinby, King, and others. The great interest in bees has arisen chiefly from the marked resemblance which their modes of life seem to bear to those of man. Remove every fanciful theory and enthusiastic reverie, and there still remains an analogy far too curious to be ratified with a passing glance. On the principle of *nihil humani a me alienum*, this approximation to human nature has ever made the favourites of their masters. And theirs is no hideous mimicry of man's follies and weaknesses, such as we see in the monkey tribe. Their life is a serious, matter-of-fact business, a likeness to the best and most rational of our manners and government, set about with motives so apparently identical with our own that man's pride has only been able to escape from the ignominy of allowing them a portion of his monopolised reason by assigning them a separate quality under the name of instinct. It was the equal of Solomon, Virgil, who said: 'The complicated and wonderful economy of bees can be referred to naught else than the direct inspiration of the Divine mind.' But we, from all that has been said by eminent men, should not forget the real services achieved in this as well as in every other branch of knowledge by the encyclopedist, Aristotle, the pupil of him who was distinguished as the 'Attic Bee;' or the life of Aristomachus, devoted to this pursuit, or the enthusiasm of Hyginus, who, more than 1800 years before the Rev. Mr. Cotton, collected all the bee passages which could be found scattered over the pages of an earlier antiquity.

Varro, Columella, Celsus, and Pliny, have each given in their contributions to the subject, and some notion may be formed of the minuteness with which they entered upon their researches from a passage in Columella, who, writing of the origin of bees, mentioned that Euchemerus maintained that they were first produced in the island of Cos, though Euthronius asserted they originated in Mount Hymettus and Hicander in Crete. Considering the obscurity of the subject and the discordant theories of modern times, there is no branch of natural history in which the ancients arrived at so much truth. Since the invention of printing, authors have gravely related stories of an old woman, who, having placed a portion of the consecrated elements at the entrance of a bee-hive, presently saw the bees busy in erecting a shrine and altar of wax, with steeple and bell to boot, and heard, if my memory is not dreaming, something like the commencement of an anthem.*

Concerning the antiquity of the *Apis mellifica* family, we are only able to trace its existence through past historical ages. The primitive natives of Egypt did not record what transpired or was known to them. The most ancient memorial matter that is known was chronicled by the priests—literati—who engraved certain characters called 'hieroglyphics,' which indicated certain meanings understood by the priests. It was called picture-writing, or writing in sacred words. In the Egyptian dialect the picture of a hive bee represented Lower Egypt, restricted to the island in the Nile at its confluence with the Mediterranean Sea, and called by the Greeks the Delta. This symbolising of the honey bee affords us the remotest data of its existence, and points to the whereabouts of their origin or first appearance on earth. I have made research and have become satisfied that priests of primitive Egypt had knowledge of the birthplace of the original progenitors of the honey bee race equally as certain as the shepherds had of the place called Bethlehem.

With the ancient Egyptians the picture of a queen bee was the emblem of royalty. This is evidence that Lower Egypt, the Delta, was the sovereign mother

* See Butler's *Feminine Monarchie*, p. 16. (Edit. 1634.) —Ed.

country anterior to all Egypt becoming one kingdom under Sesostris. If, as is claimed by eminent historians. Lower Egypt was the cradle of the primitive Israelites, who were the uncles of the subsequent mighty nations of Nineveh and Babylon, from whose loins the world is peopled, may we not logically conclude that the original nursery of the hive bee, though called an *insect*, living in common like men, each one doing his part for the good of all, was in the Eden of the Israelites, where the landscape is a beautiful plain unadorned with 'hills and shrubs?'

If we study the monumental records of early times in Egypt we may reach back to the dawn of freedom. Egyptian rulers seemed to place their chief glory in rearing monuments for posterity. Their temples and pyramids were the grandest in the world, but the obelisks, an Egyptian invention, became the principal ornaments of all countries. On the planes of these stone pillars were inscribed the memorials of antiquity, the only data of earlier times than the Christ-cross row save the genesis proclaimed by the aforesaid editor.

According to eminent Egyptologists, the obelisk taken to Rome, standing at St. John Lateran, is over 4200 years old. The obelisk (Cleopatra's Needle) standing in New York City is inscribed with memorial data in prehistoric times. No interpretations of the inscription, so far as I can discover, relate to bees, yet I believe they are represented. We fail to fully appreciate that we have in the City of New York such a treasure of antiquity—the obelisk. We but faintly realise that Moses and Aaron, Father Abraham, the Prophets, Alexander the Great, and great personages—antique Hebrews, Israelites, Greeks and Romans, and, quite likely, the Divine Redeemer, have stood near this obelisk and read or tried to decipher the inscription.

In Egypt and everywhere honey bees in their natural state take up their dwelling in trees, logs, under stones, and in clefts of rocks. The expressions of Moses and of the Psalmist, 'honey out of the rocks,' is proof that the habits of the busy bee have ever been identically the same.

The early part of Egyptian monumental history was covered with the arrivals of Abraham and Joseph, and the exodus of the Israelites, and we can only get a glimpse of what was the state of the world at that period from Biblical literature, from which we learn that bee-keeping had ever been a principal branch of their domestic pursuits. What aliment, if any, Adam subsisted on before his unfortunate disobedience—query, but milk and honey is the food first mentioned; hence we are in possession of evidence that honey bees were coeval with man's appearance on the globe—created with and for his purpose, else God would not have mentioned honey as the food for His chosen people, yea, He furnished honey as a special blessing to His elect.

We do not know just the type of the original progenitors—just how many golden rings or stripes, or colour, but certain it is that no hive bee exists other than the true lineal descendants of the one original nucleus. Bees existed before the Deluge, and it is not important about the kind of hive Noah carried into the ark (lest the disciples of Mr. L. grieve and murmur, I do not dispute their claim that it was an L. hive antedated prior) but how about the 'bands'—the *colour* of the bees preserved for seed?

We find the honey bees first on the Delta in Egypt (perhaps Noah set them out there), and it is probable that the original nucleus, or the colony Noah put in multiplied and spread up along the valley of the Nile; also eastward over the Isthmus of Suez into Syria and along the eastern coast of the sea and crossed to Cyprus, Greece, and Italy. Wherever people migrated bees were taken, for they were the first domestics on which mankind were dependent for a living. A correspondent claimed that the Italian bees are a distinct family, not akin to the bees of elsewhere. His proof rests on his idea that the pioneers of old Rome would not bother with importing bees. He is so short of ideas that he does not see it is equally as probable that mankind originated in Italy as that bees originated there.

Like other creatures, bees show different marks; but the difference is not radical—only a divergement within the bounds fixed by the hand of nature. We know of no type, bred or strain, of bees that is constant in reproducing, identically, progeny after its progenitors. This fact settles the claim that bees have but one origin common with all of every name and nature. The differences observed come about by reason of different geographical influence or by accident—freak of physical nature. Colour is not organic in living creatures. Colour of epidermis (skin) and its appendages (hairs, roots, &c.) are the creatures of accident; dependent not on constitutional element of species, but dependent on the secretive functions of the skin, an aberration more or less common to all creatures—fickle as the colour of the clouds. Hence we read about golden and dark Italians, white drones and Albino bees, either of which it is fancied is a distinct insect family. The identity of the original type as to colour cannot even be inferred. If the bees Noah preserved for seed were then a mixed breed, such as are called hybrids, we are not left to wonder at honey bees being so confusedly mixed at this late date, that is, so diverse and variegated in external appearance. Presumably the original type has at some remote periods diverged somewhat, yet identical in attributes which are enduring and constant as are the planets in their respective spheres. I think the Oriental bees, perhaps by reason of congenial climatic influence, were and are more beautiful than bees bred through long periods in rigorous climates. Colour seems to be more uniform or fixed and the type reproduced more closely by the native bees of the country round about the Mediterranean than elsewhere. This circumstance indicates that climatic influences incident thereto subject bees to what are called freaks of nature. Melanism is the opposite of Albinism, and there are bees of both colours, and all shades between, but their natures are the same. Dzierzon tried the yellow bees in Germany, and concluding said he would not give a stiver for the difference, except commercially.

In my research I found one item in sacred history that tells of the original home of the honey bee. The Prophet Isaiah explained to the people that the Lord would punish people for their disobedience by introducing armies into their country and compare the armies swarming among the people like bees swarming among flowers. He says: 'The Lord shall hiss (whistle) for the fly (bee) that is in the uttermost part of the rivers (Nile) of Egypt, and for the bee that is in the Land of Assyria,' chap. vii. ver. 18. The words 'fly' and 'bee' mean the same. Rivers refer to the lower branches of the Nile, and 'hiss' in the version means whistle. The prophet illustrated the idea of armies by alluding to a tradition common among the people of the Orient, which was superstitiously believed that the proprietor of an apiary by one hiss or whistle could summon all the bees in the village round about, and by the same signal conduct them into one bed or field of flowers, that is, the bee-master could by the signal call all the bees from two countries into one locality making the number fearful, and the idea that the Lord's armies compared in hosts with the myriads of bees must strike terror and cause good behaviour. If the prophet wrote by dictation of the Omniscient he could not mistake the locality of the bee, 1st, rivers of Egypt, 2nd, Assyria.

The foregoing is my version of the subject, independent and alone. Perhaps I am one who can never rise into the region of essayist, but formed to plod on the lower

levels of thought, unpossessed of the pinions necessary to reach the heights, and cannot realise the mental act by which a man of genius reaches a conception which unravels and illuminates the tangle of centuries of observation.—*Richfield, Sept. 3rd*, 1888 (*The Bee-Keepers' Magazine*).

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

Committee meeting held at 105 Jermyn Street, on Tuesday, March 19th. Present, the Hon. and Rev. H. Bligh (in the chair), the Rev. Dr. Bartrum, Rev. J. L. Seager, Rev. Geo. Raynor, H. Jonas, Rev. F. S. Sclater, Rev. F. T. Scott, P. P. Hasluck, W. Lees McClure (*ex officio*), and the Secretary. Letters were read from Captain Bush, R.N., Captain Campbell, and Mr. Garratt, regretting their inability to be present.

The minutes of the last committee meeting, and of the special meeting held on February 27, were read and confirmed. Mr. W. Lees McClure (Lancashire and Cheshire Association) and Mr. H. G. Morris (Kent Association) were approved as *ex officio* members of the committee.

Mr. McClure reported that the Lancashire and Cheshire Association had considered the several suggestions made by the President of the Central Association at the annual general meeting of the members, and desired to report as follows:—

(1) That in the interest of bee-keeping it was desirable that every possible effort should be made to prevail upon the Mercers' Company to form an apicultural department in connexion with their proposed Agricultural College.

(2) That it would not be judicious to establish apiaries at the Unions, where the paupers would in any way come in contact with the bees.

(3) That the wholesale Co-operative Society and its corresponding retail shops throughout the country formed the readiest outlet for the sale of all surplus honey.

The Secretary reported that he had made arrangements with Mr. A. H. Martin, hon. sec. of the Worcestershire Association, to represent the B.B.K.A. at a meeting to be held at Evesham in respect to the new railway rates. The Secretary was instructed to communicate with the several affiliated Associations requesting them to lodge a protest against the proposals of the railway companies either independently or in connexion with some other local body. It was also resolved to lodge a protest against these rates from the Central Association.

A vote of thanks was accorded to the Ontario Bee-Keepers' Association for their donation to the B.B.K.A. Library of the new edition of 'Langstroth on the Honey Bee.'

The educational sub-committee presented their report on the revised instructions to examiners in conducting third-class examinations, the same having been considered were passed and ordered to be printed.

STAFFORDSHIRE COUNTY BEE-KEEPERS' ASSOCIATION.

The Annual Meeting.

The General Meeting of the Association was held in the Guildhall at Stafford on February 9th, Col. Mort in the chair. There were forty-three members present. The reports of the Secretary and Treasurer on the work of the past year were presented to the meeting, and the officers and committee for the present year were elected.

From the Secretary's report the members of the Association will be pleased to find that, in spite of the worst honey season which the oldest bee-keeper can remember, the Association still remains in the same prosperous condition. The experts' visits have been as welcome as ever, and the advice will prove to have been more useful where their instruction has been accepted. The table shows the result of their labours.

Spring Tour:	Days.	Members Visited.	Skeps Examined.	Frame-hives Examined.	Total.
Rollins ...		187	121	368	489
Wilshaw ...	16	104	52	180	232
		291	173	548	721
Autumn Tour:					
Rollins ...		50	60	233	293
Wilshaw ...	12	39	28	117	145
		89	88	350	438

The bee-tent was engaged at six shows and fêtes. In this department the Rev. G. R. Bailey reports that our work seems to have been less popular, and it will be necessary to introduce some new feature other than driving bees from a straw skep to meet the requirements of advanced bee-keepers if we are to look to the bee-tent for any satisfactory result. It would be far more instructive if in future a skep was not introduced, and for the lecturer to confine his attention to all details of the bar-frame hive, with practical illustration of the best system of obtaining honey in the most attractive form.

The *Bee-keeper's Adviser* has been circulated among sixty-four members. The following have acted as distributors during the year:—Messrs. G. Farrington, E. E. Crisp, J. R. Critchlow, E. Joberns, and Z. Cartwright.

The Annual Show was to have been held in connexion with the Staffordshire Agricultural Show at Burton-on-Trent, but owing to the unprecedented failure of the honey harvest the Committee felt that to hold it would be to court failure, and consequently it was reluctantly abandoned. This is the more to be lamented, as, owing to the liberality of the Lady Burton and the Local Show Committee, we should have experienced the pleasing novelty of a favourable financial result; in all previous years we have sustained a serious loss.

The Annual Lottery took place, when the first prize fell to E. Clowes, of Black Brook, the second to Thos. Bailey; and besides these, volumes of the *Bee Journal* which have accumulated since 1883 were distributed among the following:—Messrs. J. Bond, G. Benbow, Z. Cartwright, W. B. Yarde, F. D. Mort: Misses Till, A. Goldsmith, W. Stendall, J. B. Piercy, and E. Wood.

Votes of thanks to the Mayor of Stafford for the use of the room; to the officers for the past year for their services; and the Chairman for presiding, brought the meeting to a close.

YORKSHIRE BEE-KEEPERS' ASSOCIATION.

Lecture on the Wonders of Bee-Life.

This instructive and interesting subject was ably dealt with on Monday evening, March 5th, in the National School, Aberford, by Mr. R. A. H. Grimshaw, of Horsforth, Hon. Secretary of the Yorkshire Bee-keepers' Association. The attendance was not so good as the importance of the subject merited, but it included the Vicar (Rev. A. L. Barnes), Lawrence C. Brown, Esq., Mr. Ellerton, Mr. H. Rishworth, Mr. J. Heaton, Mr. J. Connell, Mr. J. Atkinson, Mr. Watson (Micklefield), &c. Mr. W. Dixon, of Leeds, the well-known bee-enthusiast and authority, assisted the lecturer with his magic lantern, the magnificent views thus shown bringing home to the audience more forcibly the wonders of bee life.

The lecturer remarked that the mind became almost

bewildered with enchantment, and sank abashed at the ignorance of even the most learned, when the wonderful mechanisms and adaptation of means to ends amongst living things were contemplated, and this was particularly the case in the insect world. The 'humble bee,' properly so called, like the rest of animated nature, has to toil for food. It makes its humble home, perhaps, in the middle of a field, under interwoven bits of moss, beautifully waterproofed underneath. The queen mother, having built a few cells and laid eggs in them, by-and-by finds a large family growing up around her, so she leaves to them the work of forming additional cells to accommodate the ever-growing community. All labours are performed by the younger members, until, later on a new kind of bee appears in large numbers; these are of greater size than the workers and are called drones. These are the males, and are the fathers of the bees three or four years in the future, although the progeny of young bees are destined to an existence of only a few months; this period also terminates the life of the drone. Still further on in the season the queens are hatched out, and these are the largest bees in the nest, and the only ones which have the instinct of self-preservation strong enough to burrow into the earth on approach of winter, and thus survive into another year. All the others die. It is the queen humble bee which we notice in early spring appearing to us of unusual size humming so loudly amongst our spring flowers. I do not intend to occupy your time by saying anything further about the humble bee, but will direct your attention to a higher form of this insect—the honey bee. This bee seems to have been developed under a never-erring guidance into a creature gifted with something much higher in the mental scale than instinct; nothing short of reason can account for the many marvellous things it does, although many of these have been incorrectly stated by many writers. For example, it has been generally understood that the government of the hive is despotic, presided over by the queen, but this is not the case. On the contrary, it is a monarchy somewhat similar to our own, with the exception that the queen-bee has no royal power, for the majority settle everything. They will even dethrone her and raise up another queen from the lowest rank of workers. She is to them simply the one perfect female they will tolerate amongst themselves, and that only for the purpose of keeping up the supply of eggs, which they require to nurse into the future nation. The bulk of population consists of imperfect female bees, and these are of two classes. Nurses for a time after they issue from the cells they busy themselves in cleaning the hive, &c., and attending upon the queen mother, even putting food into her mouth in order that she may not waste any of her valuable time in seeking it, but go on depositing egg after egg in the cells built by workers for honey-storing. In the height of the season the queen and the workers seem to be in a perpetual contest—the cell-builders to get ahead and the queen to overtake them. The nurses again are engaged in preventing the old queen from tearing open the new queen-cells and destroying her own progeny whom she hears calling to her, and to whom she replies with a deadly challenge which can be clearly heard outside the hive. Making a larger cell out of three smaller worker cells when a new queen is required, should accident remove the old one, or should there appear a probability of swarming, cell-designing and constructing, brood-feeding and attending, queen-feeding and rearing, hive-cleaning, warming and ventilating, keeping watch and ward day and night at the entrance, these are only some of the duties of the stay-at-home females, to say nothing of turning out of house and home every drone bee on the approach of winter or if there be a probability of stores running short. The bees with admirable forethought have no doubt concluded that every us less member must be dispensed with, and that is rather hard on the poor drones. How do they turn them out? They hustle them and nibble their legs and wings until they are perfectly miserable. The poor creatures seek refuge in other hives, but are repulsed until at last they die of absolute starvation. There is not a more cruel, selfish, little thief in the whole insect world than the worker bee, nor a more abused, honest, and harmless insect than the drone so persistently held up to execration. The collection of nectar from flowers to convert into honey and the fertilisation of plants by means of bees was next graphically described. Bees soon die after having used their sting, by reason of the sting being left in the part attacked, and they seem to be aware of this for on attacking human beings or animals they choose those parts (eyes, nostrils, and other tender places) from which they might have a chance of removing the sting. Referring to swarming, the lecturer stated that a strong hive of bees consisted of some 30,000 to 40,000 in number, and as it takes 5376 to weigh a pound, the weight of a hive of bees would be about 6 lbs. Having passed through the winter, when February comes the queen bestirs herself by laying eggs in the empty cells at varying rates to a maximum of upwards of 2000 a-day, and as the population increases so rapidly it will be easily seen that more room must be found. At this time the queen, finding young queens about to come forth from their cells, becomes jealous of her position and dreads dethronement. She rushes about from comb to comb agitating the bees by her disturbance until the already sweltering hive becomes unbearable. She rushes out of the hive accompanied by thousands of workers, who have agreed upon this course by some subtle method of communication with which we are almost unacquainted; and here is our swarm. The life of the new family in a new home was graphically and minutely described, but our limited space precludes further description of Mr. Grimshaw's able lecture. If opportunity should arise we would advise our readers not to miss the opportunity of hearing this lecturer on the 'Wonders of Bee Life.'

At the conclusion, on the motion of Mr. W. Freeborn, seconded by Mr. J. Heaton, a vote of thanks was accorded both to Mr. Grimshaw and Mr. W. Dixon.—*The Skyrack Courier, March* 9, 1889.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 2nd page of Advertisements.)*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

A NEW IDEA IN BEE-HIVES.

[2039.] In all the methods of working for comb honey before extant there has always seemed to me to be a fundamental fault in that the supers were put above the hive to be filled, also made a vacuum just where we would wish it to be warmest. Another fault of the old style was that it was a contradiction of the bees' law of always building comb downwards. My first objection could be met by giving supers of empty comb to be simply filled with honey and sealed. But the difficulty always has been how to get sufficient new clean comb, though the difficulty was partly got over by using full sheets of comb-foundation. This, however, was but a

feeble step, and the hurtful vacuum was made very little better. Then, again, the risk of swarming when working for comb-honey was very great, and indeed it was almost impossible to prevent loss from this cause.

Therefore it was with the greatest pleasure that I got a sample of an entirely new principle in hives. The maker and patentee is Mr. J. H. Howard, Holme, Peterborough, who is well known as a leading bee-keeper in England. This frame-hive is of the simplest possible construction, and can therefore be made very cheaply. As seen by me it consists of a floor-board, a moveable and interchangeable body-box holding eleven frames, or less if dummies are used, two crates of sections, a queen-excluder of new pattern zinc, and a well-made roof. All these are of his old and approved form, but it is in the principle of using wherein the beauty and utility consist.

As is well known to every bee-keeper, bees will always build comb downwards if at all possible, and if there is a space below the combs the colony won't swarm. Now, non-swarming and heavy yields of honey go hand in hand. Mr. Howard has practically filled these requirements with his 'Paragon' hive. To work it he says, 'In the spring get the stock as strong as possible, and the body-box full of bees, when the honey flow commences; then, to give more room and prevent swarming, lift up the body-box and put a super with sections *beneath* it, but between the body-box and this super (?) put the excluder zinc. You will say, "But how are the bees to get out?" Well, the super and excluder are so arranged that the way out does not lead through the sections, but down one side of them. By this arrangement all drones and the queen are kept out of this super, and yet a free entrance and outlet are given to the hive proper. The doorway itself is most ingenious: it is made in the floor-board, and in such a way that either a large entrance right across the hive or only a small one of 2 inches may be given, by moving the body-box forward or backward on the floor-board. Thus there are no loose pieces of wood to get lost. When the super below the brood-nest is seen (by the window provided) to be almost filled with combs, it must be removed and placed ABOVE the brood-nest, to be filled with honey and sealed. Another similar crate, but with empty sections, is now put below the zinc excluder, where the first was. When the top crate is full of sealed honey it is removed, and the crate from below takes its place. This crate, which was below the brood and excluder, will by this time be well filled with comb, and so in just the right condition for putting above to be filled with honey. In some cases it may be necessary to use more than two crates, but as a rule the filled crate above is removed and the partly filled one takes its place, and that which was above is emptied by the bee-keeper, and after fitting with guided sections it is placed below the brood, to go through the round of operations again. First below then, when partly filled, put above, and when full of honey remove and empty, and again place below. Each crate holds 21 lb. sections, and the oftener that they are sent the round so much the better for the bee-keeper.'

The most important article in this system is the queen-and-drone excluder, and it is the use of this which is, I believe, patented. It is beautifully made, and with a new pattern zinc having the oblong holes rounded at the ends, which make it stronger and better for our purpose. There are no plinths or other special arrangements to keep out the rain at the horizontal joints, but I quite agree with the maker that none are necessary. On first using a hive I rub tallow or vaseline well into the parts which will be propolised, and the result is a splendid ease in separating parts, because this method prevents the propolis from holding fast. I may say that this hive is equally well adapted for extracting honey, and seems to supply the long-felt want of a non-swarming hive.—DUNBAR.

EXPERIENCES, SWARM-BOX, FEEDERS, WATER-PANS, &c.

[2040.] Both last month and this, with us, the bees have been freely flying and bringing in pollen on fine days. Laurustinus, Escallonia, Berberis (Veitchii), Erica (rosea and mediterranea), single Camellia (rosea), and crocuses seem to be freely patronised. As some of the hives were inclined to be leaky I took advantage of a warm day at the end of last month to examine them, and moved the bees into clean, dry, lately-painted hives. By the aid of the cheese cloth and carbolic solution this was effected in a minute or two with scarcely any disturbance of the bees. One, in spite of plenty of stores, was *hors de combat*, and with the exception of another, the others were healthy. This exception was a stock I drove last September, and as it was very large I did not consider it necessary to unite it to another. I drove three skeps in all, two had scarcely any honey and workers, but thousands of drones; it seemed as if all the drones of the apiary (fourteen hives) had congregated there. The best of the lot contained about a dozen pounds of honey, a large quantity of workers with a fertile queen. To prepare for me, previous to my arrival the owner cut round the bottom edge of the skep, and in so doing must have also disengaged—so as to block the entrance—the shell of a defunct, enterprising, big snail that had been, very probably, propolised inside the hive, and I found, when I lifted the hive, the bees were *en masse* on the floor-board, a seemingly done-for, black heap three or four inches high. Quickly placing an empty skep over them, and trigging it up well in front, the bees soon revived, and clustered at the top of the skep. The bees left in the old skep were not more than a small handful.

Swarm-box.—The box in which I carry driven bees is contrived to take seven Abbott's 'Standard' frames (filled with old comb), so that if I arrive home after dark all I need is to place it on a stand, remove the perforated zinc on the top and at the entrance, put on a regular quilt, then a feeder and food, and a loose cover over all. The day after I got the bees home I put them into a hive, reducing the frames to five, and fed them up so that most of the combs were filled with syrup. The queen commenced laying a little, and the workers brought in pollen. This hive, though rich in sealed stores, is poor in bees. I hope to keep it alive till I can get some brood from another hive, to help it along, meanwhile all I can do is to keep it warm.

Feeders.—*Apropos* of feeders, I do not know whether any one shares my opinion, but I detest bottle feeders, having had so many messes with them—spilling syrup, half drowning bees, owing to change of temperature—not to say anything of breakage. The sort I use is of tin, round, six to eight inches in diameter, and two inches thick. A tube one and a half inches in diameter, and lined with perforated zinc, for foothold, rises in the centre, a cone of hard wood fits over this, and a tin cap to confine the bees, with glass let in, on top, over all, with a tin cover to prevent robbing and keep in the heat. I rather think Mr. Simmins must have taken the idea of his Amateur Feeder from this, as it has been in existence for years. It holds about a pound of syrup, *but a gill can be put in at a time should slow feeding be desired*, and cost me 1*s.* 6*d.* With it no danger of breakage, spilling, bees escaping, and robbing. The bees come up for food through the tube under the tin cap and on to the wood cone; the glass at the top of the cap is for the purpose of seeing if they are feeding. When I finish feeding with syrup I fill the tin with moist sugar, flour paste, or candy, as they may require, and remove the tin cap cover down and pack for the winter.

Waterpans.—I keep a round galvanised iron pan filled with water in a sunny spot in the garden, near the hives. It has on it a wood float, pierced with holes, is about a

foot in diameter, six inches deep, and cost 6*d*. Cork-dust I have found does not always answer, as dead bees may sometimes be seen floating with it.

Proper Distance.—In 'The Choice of a Hive,' p. 110, Mr. Cowan clearly expresses the *beau ideal* modern hive; but would he kindly tell me and those like myself who were unable to be at the meeting, which plan was most adopted at the large apiaries he visited in America (see second column, p. 111), frames with a fixed distance as the 'Langstroth,' giving one and a half inches from centre to centre, thus giving the same distance between all combs, or the plan he advocates, and followed in the Heddon system, of giving one and a quarter inches for the brood nest, and one and three-quarter to two inches for the outside combs? It strikes me that where time is an object, fixed distances, by broad shoulders, &c., would have the advantage over plain frames requiring careful adjustment. As far as metal ends and W. B. C. ends are concerned, they are more bother than they are worth, besides the fact of great loss of heat and condensation with their use. A dealer told me he preferred wood broad-shouldered frames to metal ends for his own use, but that as he got more profit out of metal ends he would keep them as long as there was a demand. One great advantage in Abbott's bars is that comb can be placed flat against the wire in the extractor, thus minimising breakage. In my opinion the next best are 'Langstroth' bars, which, if so desired, could be used with plain end frames, to give one and a quarter from centre to centre. But is this necessary if whole sheets of foundation are used? which surely prevents or limits drone production. We are told the let-alone system pays best. Is this changing the distance between frames in the brood nest from winter one and a half inches and spring to one and a quarter inches? For my part, I think it natural for the bees to store a little below, and as far as my experience is concerned are the healthier for the two inches down the frames, so much the less food to give them, and if apiarists think their syrup better for the bees than their own natural food (?) honey, why then let them extract the honey. With reference to hives with shallow frames (2024, p. 117), Mr. Cowan's admirable paper fully answers the question in the last paragraph, p. 111. The great difficulty with some who use them is the wintering, especially if the hives are on very low stands.—JERSEY BEE-KEEPER.

[By far the larger number of American bee-keepers use 'Langstroth' hives, but in these the distance is not 'fixed,' as our correspondent surmises; and although the hive is so arranged with regard to dimensions as to take a certain number of frames at a distance of $1\frac{1}{2}$ in. from centre to centre, the same as our own, one of its principal features consists in their being no projecting shoulders to the frames, metal ends, staples, or any other means of preserving a fixed distance; and it is left, as it should be, to the discretion of the bee-keeper to regulate the distance as he pleases. On the contrary, it is the Heddon and similar hives that have a fixed distance, as all the frames touch each other along the whole length of end bars. In the Heddon this distance is $1\frac{3}{8}$ in., or half way between the distance we advocate and the normal one of $1\frac{1}{2}$ in., and that distance is retained summer and winter. The advantages we claim in being able to alter the distance of the frames is that experience has shown us that by placing frames at $1\frac{1}{4}$ in. from centre to centre, drone-brood is entirely prevented, as there is not room for its development; drone combs being $1\frac{1}{4}$ in. thick, there would be no room for the passage of the bees. By adopting this distance, we obtain compact slabs of worker brood, an enormous advantage where honey is the object. We have never seen such even combs produced where the distance is fixed at $1\frac{1}{2}$ in. For winter we prefer our frames $1\frac{3}{4}$ in. apart, as this gives bees a better chance of clustering in masses. The 'let-alone system' is just as bad as the 'constant meddling system,' and a happy medium is the best. The hives *must* be examined at least in the spring and autumn, and it is at these times that the change in distance is made.—ED.]

EXCLUDER ZINC, SHALLOW FRAMES, &c.

[2011.] Your correspondent 'J. B. R.' (1966) wants a question answered that many besides himself would gladly have settled, viz., that of, Shall we use excluder zinc or shall we not? I think a call for testimony based on experience might at any rate be a step or two towards that end. The use or non-use of it is no mere 'fad,' but a matter of considerable importance to bee-keepers. Perhaps it will be discovered some day that the supposed hindrance it causes to the worker bees is the fad; of course I am speaking now of the improved, and not the zinc having round or circular perforations. My experience on the subject, if 'J. B. R.' cares to hear it, might be spoken nearly in Mr. Wilcock's words and experience. I have used it some four or five seasons now, and should not like to work without it for the following reasons: First, because never a queen of mine has passed it to my knowledge, and having a bee space, as all mine have above and below, I have watched the bees closely to see if they went from hole to hole as though with a hope of finding a larger perforation, and thus with greater ease descend below; but nothing of the kind takes place unless they are unduly excited; as for any loss of bee life, I have never yet found a dead one in my supers, and the knowledge of the fact that the queen is below relieves one's mind respecting the handful of bees still left in the super that has gone into the dark shed to wait the extractor. Secondly, brood in supers means pollen in supers, that means honey stained more or less when extracting commences. There are other reasons that might be given in favour of using zinc excluder, but the two mentioned stand first in my opinion. Now put these two in the scales on one side and on the other,—first, the cost of excluder zinc; second, the fact,—no, the theory, that excluder zinc hinders the bees, and I have (others must weigh for themselves) abundant consolation in the fact that my largest yield has every year yet been from off the zinc. I have been making a strict search for pollen in my supers (*viâ* extracting) and I have a few—not one single cell charged with pollen was discovered, but combs of snowy whiteness. I cannot think why doubling with combs of standard size, dark, perhaps in some cases black, by use in the brood chamber, and a plentiful supply of pollen, should have come so much to the front when a stock that is ready for work by May 1st can be made to stow away from 80 to 100 lbs., and that above excluder zinc in pure white combs kept for the purpose.

Shallow Frames.—I use these—seven of them as a rule—in each super, the same size as regards length as my stock frames, but chiefly $5\frac{1}{2}$ in. deep. This size super allows plenty of room round them for warm packing, and forty-nine out of every fifty combs are built down to the bottom-bar, and are quite heavy enough when filled on a hot July day to lift about. Contrary to advice seen in *B.B.J.*, these combs, after having been duly cleaned by the bees, and then scraped free from propolis, and each super wrapped up neatly in paper, are stowed away in a cold, not damp, but nearer to that than a warm and dry place, as, being free from pollen, they are not affected so much if they did become slightly damp in such a place. The wax-moth cannot exist, and I have no need of the sulphur fumes to destroy them and to discolour the combs. Any amateur who has not tried these shallow frames should do so; they will be pleased with them. I read of a lift for frames, by-the-by, in some one's catalogue; will not some one of our appliance-manufacturers make us a cheap, strong, and light super lift, so that when two supers on a hive have

to be raised to make room for the third, and the third for the fourth, and so on, they might all be lifted together, instead of the labour of separating and taking them off one by one and replacing them again?

Feeders.—One of our leading manufacturers writes me, 'It is almost impossible to invent anything new in the bee-appliance line.' I think there is just room for another regulating spring feeder. Some of those that are out are only feeders in name: small bottles, badly-fitting caps, causing leaking, then robbing. Our springs are so cold as a rule that sometimes the bees will not leave the cluster to fetch the syrup out of a Raynor. Will not some ingenious bee-brother invent a feeder which conveys the syrup to them in the cluster (but not by leakage), so that in cold weather the syrup may be taken freely? Mind, also, that the bottle of the feeder is large enough to hold a quart, so that busy men have not to go and fill up every night, and do not let the price be above 1*s.*

Your pardon, Mr. 'Useful Hints,' for referring once more to the excluder zinc. I wish brace-combs could be dismissed in practice as quickly as you dismiss them in words. I find them very objectionable; the carbolic cloth, the thin-bladed knife, and the slight twist, do not solve the difficulty or take them away, for, do as you like, where a brace-comb is built, whether cut off or not, it still blocks up a certain number of perforations in the zinc, making so many doors shut in their way to the super. I am quite sure I will be glad to take the place of a learner at the feet of any one who will tell me a simple and practicable way of getting rid of this, which, in my humble opinion, is one of the greatest drawbacks to the use of excluder zinc.—J. W. Blankley, *Denton, Grantham.*

Echoes from the Hives.

North Leicestershire, March 23rd.—Reports from all parts of the county tell the same tale, 'All dead,' 'Ten out of twelve dead,' &c., &c. The greatest mortality has, of course, occurred among the skeppists, but considerable losses among bar-framists have also to be recorded; the report being nearly in all cases, 'Dead with plenty of stores.' The weather continues cold, and though the snowdrops are in full bloom and the crocuses coming on, there seems to be little or no yield of nectar and pollen. Large amounts of pea-flour are being carried into the hives.—E. B.

Goldthorn Hill, Wolverhampton, March 23rd.—Did not take a single pound of honey last season from a dozen stocks. Have lost three this winter from stores having granulated, and another from dampness. Remaining stocks healthy and well. Those that have come out best are those that were fed up in August and early part in September. Shall feed up early in future—whilst the veterans are still alive—in August. My strongest stock is headed by a Carniolan, and is on 11-in. deep frames, a purchased stock last autumn.—C. N. P.

Sunderland, March 25th.—I have now seven stocks all fairly strong in numbers. One died during the winter, but it was weak to begin with, and suffered from robbing. At present I am feeding with pea-flour cake, which I made very successfully from the directions given in the *Guide Book*. I hope shortly to begin syrup-feeding. We were favoured with fine sunny days on the 9th, 10th, and again on the 16th of this month; and to-day also has been fairly warm—many bees out, some bringing in dark red pollen (crocus?); a good many, too, patronised pea-flour which I had scattered on shavings in a sunny corner. Last Wednesday we had a very severe gale, accompanied by a good deal of rain, and during the night the cover and all the cushions and quilts were blown off one of the hives, and when discovered in the morning the poor bees were quite numb with cold; but much to my surprise they have recovered and seem quite flourishing.—F. Gayner.

NOTICES TO CORRESPONDENTS & INQUIRERS.

John Hall.—*Hives in Lofts.*—The room would be well enough if it is free from jarring, and if the entrance is not situated immediately under the window where the bees are to be placed. In windy weather bees are liable to drop down and settle on anything below the alighting boards. Some might in this case settle on and possibly sting the horses. Such a thing, however, did not happen during the seven years that we kept bees in our stable lofts, although our horses went in and out of the doors just below; still we should advise caution, especially as you would have other people's horses to consider and not your own. We should prefer the south windows and block up the north. You need not take out the windows, but simply make a passage and tunnel from outside to the hive. Have an alighting-board outside on a level with entrance. Arrange the windows to open outwards, so that you can easily get rid of bees when manipulating. The hives should stand on a table at the proper height, and there should be no opening into the room from the hive. We had a passage sunk in a piece of wood, and covered this with glass, so that we could see the bees passing in and out of the hives.

F. Goodrich.—1. *Comb-Building.*—This cannot be done until warm weather sets in; during that time the bees must be fed plentifully unless natural stores are coming in. The foundation should be inserted in the middle of the colony, and then only when the hive is crowded with bees. The outside frames, if without brood, can be removed for future use. Do not separate the brood-nest more than by the insertion of one frame at a time, and then only in warm weather. 2. *Bees clustering between the inside and outside case of hive.*—You did not allow of sufficient room in the hive proper; do this, and they will not cluster if there is plenty of forage for them. 3. *Feeders for Spring.*—Those mentioned are very unsuitable. Use a regulating bottle feeder. 4. *Mouldy Combs.*—Place them in a warm, dry place, and when quite dry brush off as much of the mildew as possible, then return, one at a time, to a very strong colony. If any portion of the comb is rotten, cut that part away. 5. *Giving a Carniolan Queen.*—We do not know any gentleman who would do this. 6. *Norice's or Root's Corners for Frames.*—The ordinary Association standard frame with W. B. C. ends will answer just as well, in fact better, for a novice.

Middlesex.—1. '*Tiering up.*'—To answer this *in extenso* would occupy more space than we can spare. See any modern work on bee-keeping. One rack is not sufficient for a hive; two, at least, must be used if the season is good. 2. *To insert Drone-Comb in Frame.*—With a warm knife cut out the contents (drone-comb) of an empty section, shave the cells down to 1½ in. Cut a piece of comb of the same size as the drone-comb from the middle of a frame of comb, then crowd the drone-comb in its place. The bees will repair and fix. 3. *Artificial Pollen.*—We did not advise you to place bran, but pea-flour sprinkled over some shavings in a box, with some protection from the weather provided. The honey (a few drops only) is to be placed on the shavings; the bees on a fine day will soon find it out. 4. *Sheet Tin.*—You will have to specially order the large sheets from a tinman. 5. *Directions for making Extractor.*—The pieces of tin are to be formed into two bottomless and topless oblong boxes, having a ledge (half-inch) along the bottom inside edges for the comb-baskets to rest upon. You will now no doubt understand the directions. 6. *Spreading Brood.*—Don't! Allow the queen to fill the brood-nest in a perfectly natural manner.

THOMAS DAVIES.—*Introducing Queen.*—1. Any time during the working season. Queens are cheapest in autumn. 2. To a stock.

SUBSCRIBER.—*Transferring.*—Wait until the middle of May. Any of the modern works on bee-keeping will give you the necessary information as to the method of doing it.

HENRY HOBART.—*Storing Candy.*—Yes; the candy is deliquesced by the bees, and then stored in the cells. You can obtain a knowledge of the amount stored by the weight of the skep.

W. D. MARLOW.—*Drone Production.*—It is not an accepted fact that all drones have no father, or rather that the drone progeny from a fertilised queen does not partake of the drone that fertilised such queen. We are rather of a contrary opinion, and are supported in this belief by the fact that the drones from an Italian-English colony are hardly ever as true to colour as those from a purely fertilised queen. This point has not as yet been satisfactorily explained. No doubt in time to come we shall become enlightened upon the subject, and even selected queen fertilisation brought within the powers of the bee-keeper.

JOHN PERRY.—*Regulating Feeder.*—Your idea seems a very good one, but we would suggest two alterations: Use perforated *tin* instead of zinc at the feeding places; add an inverted cone of perforated tin at bottom of funnel to prevent the sediment collecting round the tap where it would be more difficult to remove. We should very much like to have one to examine for a day or two.

F. GAYNER.—The bees forwarded have a strain of the Ligurian:—No. 1, one remove; No. 2, two removes.

WALLIS.—If you desire to utilise the skep full of comb, you might in all due time introduce into it a swarm. It is not a remarkable feature to find in a straw skep combs built parallel to entrance.

The following sums have been promised to the Special Fund for the Windsor Show:—

W. B Carr	£1	1	0
Miss Eyton	0	10	6

ERRATUM.—P. 138, col. 1, line 31, *for* 3 lbs. *read* 1 lb.

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BEES, HIVES, HONEY, ETC.

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Business Directory.

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GODMAN, A., St. Albans.
HOWARD, J. H., Holme, Peterborough.
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THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.'

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Editorial, Notices, &c.

EMINENT BEE-KEEPERS.

No. I.—C. N. ABBOTT.

Many of our correspondents have, from time to time, expressed a desire that they should have the opportunity of seeing in the *Journal* portraits of our leading bee-keepers. We have much pleasure in complying with this wish. We have refrained from doing so before as frequently the representations of leading men in our newspapers have been very wide of the mark. But through the aid of photography we are now enabled to reproduce the likeness with a most faithful exactness. We therefore propose to give a series of portraits of the more eminent bee-keepers in this country, in America, and on the Continent of Europe.

C. N. ABBOTT.

We have reason to believe that the bee-keepers of the United Kingdom will heartily approve of our giving the premier place in this series to the veteran bee-master Charles Nash Abbott, of Southall, not only from his being the first proprietor and editor of the *British Bee Journal*, but also for the good work he has performed in promoting the industry of bee-keeping, and in the origination, with others, of the British Bee-keepers' Association, which has in its turn been the means of calling into existence the numerous county and district Associations, which now, like a network, cover the kingdom. The portrait here given is from a photograph taken by Mr. Francis Freeman, of Twickenham, which has been reproduced by the Meisenbach process.

We subjoin a short biographical sketch.

Charles Nash Abbott was born at Hanwell, Middlesex, on the 5th of October, 1830, and is now in the fifty-ninth year of his age. His father was a builder in a large way of business—a man of high repute and sterling worth.

Early in life, while still a lad, an errant swarm of bees found its way into his father's garden, which having been hived in a flat-topped skep, having a small window at the back, was a continual source of wonder and delight to the lad. By the help of the bee-man of the village, the young apiarist soon learned the art of feeding his bees on sugar and beer. On his return to school his thoughts often reverted to his solitary stock. In his ensuing holidays the bees swarmed, and his one stock increased to three. These were the dark ages of bee-keeping, and the 'taking up' of one of his hives in the autumn is a dreary remembrance. The day of light, the existence of the *Journal*, was then far distant.

Many years passed away before Mr. Abbott had an opportunity of renewing his acquaintance with bees—years of school, of apprenticeship, of business; during which time there was no possibility of keeping bees, and his glimpses of them were 'few and far between.'

In the year 1865, Mr. Abbott's father died, and this event released him from business necessities, and permitted him to return to the dream of his youth. We find him once more a resident at Hanwell, and the happy owner of two skeps of bees. His bees throve wonderfully, they multiplied in two years to fourteen, and the old stocks yielded on an average ten pounds of honey.

Mr. Abbott was the possessor of an active mind and an energetic body, and supinely reclining under 'the shade of the wide-spreading beech-tree,' listening to the soft and musical humming of bees, was not sufficient to satisfy him. An opportunity of more stirring employment, and of gratifying his now increasing thirst for knowledge of the honey bee, at this time presented itself. He received the appointment of an officer at the Central London District School at Hanwell; and here he came in contact with the medical officer, Dr. Coster, a bee-keeper of celebrity, and an ardent enthusiast of the moveable comb system. From him Mr. Abbott acquired his first real lessons in advanced bee-culture—lessons almost daily repeated and enforced by practical demonstrations. Mr. Abbott was a willing scholar under a patient and able master—one who took nothing on trust, and who insisted

on verifying the varied experiences of the leading men of the day. Numerous were the experiments made in hive construction to test the suitability of the Woodbury, the Langstroth, and the Quinby hives for the English climate. In these experiments Mr. Abbott's knowledge of carpentry proved of great service, for the hives were made under his eye, and the merits of each discussed with great earnestness. On the other hand, the doctor's medical knowledge gave him valuable opportunities of studying the terrible winter disease, dysentery, and this experience proved very useful to Mr. Abbott in after years.

Mr. Abbott, having now learned 'the more excellent way' of bee-keeping, was eager to communicate his new-found knowledge to others not so happily circumstanced. The local newspaper, the *Middlesex County Times*, opened its columns to his pen, and he thus became a ready source of information to all who sought it.

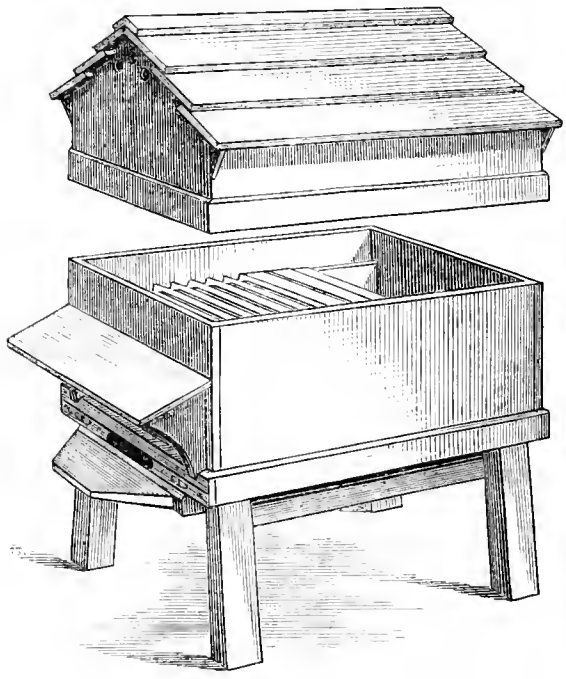
In the year 1870 Dr. Coster died, when Mr. Abbott, having purchased the doctor's apistical assets, became a bee-master on a more extensive scale than formerly, and thoughts and aspirations arose in his mind as to whether bee-keeping might not be an industry worthy of national attention. With this idea in view he became a writer in the *English Mechanic*, and also occasionally in the *Journal of Horticulture*, in both of which he warmly advocated the frame-hive system. In this way Mr. Abbott laboured in the cause for many months, each day becoming more convinced of the importance of the bee-keeping industry. At length, he threw up his appointment at the Central London District Schools, with the determination of concentrating his attention on the pursuit; and as there was no special paper in this country devoted to the science of bee-keeping, he arrived at the determination of initiating one which would give itself wholly to this object.

It would be enlarging this sketch to an undue extent, were we to recite all the difficulties and obstacles encountered by Mr. Abbott in his new undertaking. Suffice it to say that in time his dominant will and his persevering energy enabled him to surmount every impediment; and we all have reason to rejoice that he held on his way with steadfastness, for no one can deny the immense good which has resulted from the teachings of the *Journal*. With the establishment of the *Journal*, bee-keeping received a new impetus and fresh developments. One of these was the exhibition of manipulations with live bees. The first exhibition that ever took place in England, at which the operations and the mysteries of management of bees were explained, was held at the Crystal Palace in 1874. At this exhibition Mr. Abbott was the chief operator and took a foremost place, and it was here that we became personally acquainted with him; and in 1876 we find him at the Kibble Crystal Palace, Glasgow. We may allude here to the fact that at the Birmingham show at Edgbaston, Mr. Abbott drove a stock, captured the queen, and transferred combs and all to a frame-hive, in nine minutes forty-five seconds; also at the Kilburn Show he was winner of first prize for a similar feat in mud and rain in fourteen minutes thirty-five seconds.

Very soon after the *Journal* was started, in the year 1874 the British Bee-keepers' Association was established, in a great degree due to the strenuous advocacy of Mr. Abbott in the *Journal*. Mr. Abbott served on the Committee for several years.

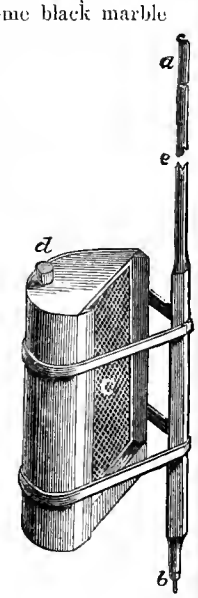
Though when Mr. Abbott commenced his career as a journalist, it had not been his intention to be a manufacturer of hives and appliances, yet the demand for these continued to increase so rapidly, that he found it necessary to prepare a home for the industry. In the first place this was established in Hanwell, but the space there for the continued development of the business was insufficient, and it was removed to Southall, where it is now conducted under the name of Abbott Brothers. The business has gone up by leaps and bounds, and now requires a large staff, numerous buildings, and a considerable amount of machinery.

Mr. Abbott continued to conduct the *British Bee Journal* for a period of nine years, till December 1882, when he vacated the editorship and proprietorship in favour of the Rev. H. R. Peel, at that time Honorary Secretary of the British Bee-keepers' Association. As soon as it was ascertained that Mr. Abbott had determined to leave the editorship, a committee was formed to raise a fund to present him with a testimonial in token of his unswerving faith in his convictions, his patient perseverance, and his brave energy in accomplishing his purposes during his editorship. The testimonial took the form of a handsome black marble dining-room clock, designed after the style of the temple at the foot of the Acropolis at Athens. Affixed to it was an inscription plate stating that it had been presented to Mr. Abbott by a few friends in appreciation of the services rendered by him to bee-keeping through his establishment and editorship of the *Bee Journal* for upwards of nine years; also a framed illuminated address in vellum with the names of the subscribers to the fund arranged in alphabetical order. The testimonial was presented in the room in Jermyn Street by the Rev. H. R. Peel on the 25th April, 1883, before a large concourse of friends and members of the British Bee-keepers' Association.



The Combination Hive.

In the year 1880 Mr. Abbott and Mr. W. Carr, of Newton Heath, Manchester, were sent by the B.B.K.A. on a mission to Ireland, which resulted in a great development of the bee-keeping industry in that island.



The Little Wonder.

We must not forget the indebtedness of bee-keepers to Mr. Abbott for his varied and continued improvements in hives and appliances during the time he was editor of the *Bee Journal;* these form a history in themselves,

and the catalogue that is annually sent forth by the present firm bears ample evidence of his work. Among these inventions the most ingenious and conspicuous are his Little Wonder Extractor and his Combination hive, both of which are extensively used, and their reappearance in this sketch will, we feel assured, be welcomed by our readers.

Though Mr. Abbott has handed over his business to his three sons, he retains a large apiary, and his greatest pleasure still consists in studying the instincts and in ministering to the wants of his bees.

BRITISH BEE-KEEPERS' ASSOCIATION.

The Committee have arranged to hold a Conference with the manufacturers of bee-keeping appliances, and others interested in the industry of bee-keeping, at 105 Jermyn Street, on the 16th inst., to consider the proposals of the railway companies to increase their charge for the carriage of goods under the Railway and Canal Traffic Act, 1888.

BEE-KEEPERS' VOCABULARY;

Or, Glossary of Technical and Scientific Words used in Works upon Bee-keeping.

Cage. *n.* (fr. *cage, L. cavea,* hollow, cavity, cell.)—A place of confinement made wholly or partly of wire or perforated zinc, to admit air while preventing the creature's escape; appliance used for confining queens during introduction to strange stocks; used for sending queens by post; or keeping queens temporarily out of the hive; queen-cage.

Cage. *v. trans.*—To confine in a cage.

Caip, Cape. *n.* (*Teut. kappe.*)—A cap or super placed on the top of a straw hive. (Prov.)

Calling. *vbl. sb.* (fr. *v.* to call. *L. calo,* I call out.)—The action of emitting a loud sound. Applied by ancient writers to the piping of queens.

Caloric. (*Fr. calorique. L. calor,* heat: invented by Lavoisier.)—Sometimes used for 'heat;' the principle, or cause of heat.

Cam. *n.*—A comb. (Cumberland.)

Came. *n.*—A honey-comb. (Scotch.)

Camis. *n. pl.*—Combs, pronounced *Caims.* (Scotch.)

Camphor. *n.* (*Fr. camfre, camphre=med. L. camphora;* fr. *Arab. kafur,* to drive off, to cleanse.)—A whitish, translucent, crystalline substance, having a strong characteristic odour and bitter, aromatic taste. Used as an antiseptic in the prevention and treatment of foul brood.

Candied Honey.—Crystallised or granulated honey; honey which has been solidified; congealed honey.

Candy. *sb.* (*Fr. candi;* fr. *Skr. khanda,* piece, sugar in crystalline pieces.)—Crystallised sugar, made by repeated boiling and slow evaporation; sugar syrup boiled to a proper consistency and stirred until cool, when it becomes a solid mass of minute crystals.

Candy. *v.*—To form into crystals; to congeal in a crystalline form, sugar or honey.

Cane-sugar.—Nectar of flowers consists principally of cane-sugar, which is converted by the bees into glucose of honey with a ferment produced by the salivary glands. Cane-sugar is not found in honey.

Cap. *n.* (*Sax. cæppe.*)—The outer covering of a bee-hive; a straw super; an extra box or case added on the top of a hive; the cover of a cell, either brood or honey.

Foreign.

BEE-KEEPING IN UTAH.

Bee-keeping in Utah, as far as I have been able to judge, differs but little from bee-keeping elsewhere. The hives and fixtures are about the same, while the pasturage seems to be more sure than in most places. We almost always get some surplus, and it is generally through extracting too close that we have to feed. Of course, the crop varies with the season. If we have a dry season, and sweet clover is not so abundant, we have a light crop. The hives used are of various patterns and dimensions.

The bees are a cross between the black and Italian, with a predominance of about two-thirds in favour of the latter, although we have had importations of other races at different times. Our best honey gatherers are generally those that are considered a trifle cross.

Comb foundation plays a very prominent part here among practical bee-keepers.

The sources of honey are various, the most prominent of which, as I have before stated, being sweet clover, while the bees gather considerable from fruit-blossoms, alfalfa, wild flowers, &c. The surplus honey-flow does does not generally commence until sweet clover bloom, which begins about the first of July; and in most seasons it continues until the first of September, although the bees generally gather enough to live upon from the middle of April until late in October.

In a dry season we do not have to wait for the honey to get sealed, as it is pretty thick when gathered, therefore we can extract, generally, when the frames are full, which, in dry seasons, is about every ten days. In moist seasons which, by the way, are very rare, we have to let the honey get about a third capped. The honey taken in the above way candies in a very few weeks and becomes very solid. It is then (with us) in a very good condition for shipping.

Comb honey is handled much in the same way as in other places. The T-super seems to be, all things considered, the best adapted to our system of management.

In handling bees during the season, the minor points in management are as many (if not more) as the bee-keepers, while the main points are about as follows:

Along in March or April according to the season, the hives get a thorough cleaning; all dead bees, dirt, broken combs, &c., are removed; the hives are straightened up, and the litter, &c., are raked up and carried away from around the hives; and if any bees are without stores, full frames from those that have plenty are given them.

In May, queen-rearing and dividing claim our attention. In June, the stocks are all built up, and everything is put in readiness for the honey flow; the supers are put on the last week in June or the first of July. In about two weeks extracting commences, and keeps up until the last of August, when the surplus honey flow generally ceases. The supers are left on until about the first of October, to catch any surplus that might be stored, then they are taken off and the bees are packed for winter.

Bees are generally wintered in single-walled hives on summer stands, although chaff hives are used. Some give their bees considerable protection, while others consider it unnecessary.

The honey-market here is not the best in the world as there are by far too many small producers; but I am happy to say that their ranks are weakening. Fruit-growers here look on bees as their friends, while the bee is considered the emblem of Utah. We hear very little about adulteration of honey, as it will not pay.

We have considerable trouble with foul brood, which is generally found in old tumble-down Kidder hives, but very seldom found in a well-kept apiary. In fact, I have never seen the disease except in neglected apiaries. The

foremost bee-keepers of Utah are young men, and you may hear of something from us in the way of bee-keeping in the near future; but be that as it may, bee-keeping in Utah has come to stay, and I predict that, in a very few years, it will be quite a source of revenue to the territory. —J. C. Swaner, *Salt Lake City, Utah, January* 24, 1889. (*Gleanings.*)

SOUTH AFRICA.

A Missionary's Experience in Starting in Bee-keeping.

I had about a dozen hives with moveable frames made in the industrial department of the school. This department had only just started, and the boys in the shop did not yet know much about using tools. I must also confess that it was my own fault that I did not get better hives. I did not think I could afford expensive hives, and so attempted to have some paraffin cases made over into hives. Kerosene oil is called 'paraffin' in Natal, and comes to us in tins protected by wooden cases. These cases, when laid on the side, are about the size and shape of a Langstroth hive; but although they were cheap, it was a penny-wise and a pound-foolish plan, as cheap investments so often are. The trouble was not that the hives retained the smell of the kerosene, but there were cracks and knots in them, and in time the cracks became wider and the knots came out. To make matters worse, I tried to make them into observing-hives with a glass and a door at the back. I can see now how foolish it was; but that did not help any then. As some one has said, 'If only our foresight were as good as our hindsight, how wise we should be!'

My hives were made and painted in our winter, so when spring came I was ready to multiply my three colonies into six. Formerly I had carried on my operations with bees at night; but now, acting on a suggestion of Langstroth's that whoever attempted to do anything with bees at night would be sure to repent of it, I determined to try the day for transferring and dividing my bees. I had made a bee-hat by framing a small glass and sewing it into a strip of mosquito netting. Like many others in this country, we had the idea that mosquitoes abounded everywhere in Africa, and took out with us a large roll of mosquito netting, which we never had occasion to use. My bee-hat was not a success. The moisture from the breath condensing on the glass made it little better than a piece of tin to look through, and the frame bumped against my nose and face rather disagreeably. I had bought a pair of weeding-gloves, which answered very well for bee-gloves. I see friend Root does not approve of handling bees with gloves; and I will confess that when I saw the gloves covered with stings, and thought that every sting meant a dead bee, I felt very sorry for the bees; but my sorrow was tempered with thankfulness that the stings were in the gloves and not in my hands.

The day selected for operations was bright and hot, and the time about noon. Armed *cap-a-pié* we sallied forth; that is, I was armed; but the native boy who was to assist me was not. My unpainted boxes had become somewhat rotten by this time, and the bees had found numerous places of exit besides the one I had made for them. It was not an easy task to carry out the direction of the book—to close the entrance of the hive and remove it to another place while transferring. I might close one entrance, and the bees would rush out from half-a-dozen others. However, I thought I could manage it. My plan was to throw a sheet over the hive, lift it quickly from the ground, while the boy grasped the ends of the sheet underneath the hive and twisted them together, and thus confined the bees. The plan worked beautifully until a stray bee made straight for that boy's eye, causing him to drop the sheet and run. Strange as it may seem, those bees were in a decidedly bad temper, as they rushed forth to see what it all meant. I thought my armour was bee-proof, but soon found out my mistake, and ran to find out where my boy had gone to. The spectators all laughed, and this suggested a puzzle which might be offered by some enterprising paper as a prize puzzle. There is no copyright on it. Puzzle: What is it that is so funny in seeing other people stung? I do not ask this reproachfully. I have myself been in both places, and I laughed when I was a spectator, and didn't laugh when I was in the other place. At that particular time I was in the other place, and did not feel like laughing. I began to think the day was no better than the night for handling bees, and that Langstroth might have said, 'Night or day, you will be sure to repent of it.'

It will probably be thought that, under the circumstances, we postponed further operations to another day. Very likely that would have been the part of wisdom; but wisdom was an article we had not yet acquired so far as bees were concerned. I afterwards learned that the principal object of bee-keeping was to acquire bee-wisdom. No; I did not wait till another day, but, readjusting my armour, I went back and tried again, and finally drummed the bees into a state of acquiescence to the inevitable. The comb was transferred to frames, and the bees were divided into two colonies. Previous to this we had moved out of a 'bee-haunted' house into another not far away. I had there prepared a nice shady place for my ten colonies of bees which I was to obtain by artificial swarming. I had not then seen friend Root's plan of placing the hives on bricks, and filling up to the edge of the hive with sand. How the white ants would like that! They would come up through the sand and eat their way through bottom, sides, and top of the hives, leaving only a shell where there was a solid board. I had prepared a place by thinning out a clump of bush, and driving down posts of a native wood, a species of olive, so hard that even the white ants do not eat it. On these posts I nailed boards, and here placed the hives. It was a beautiful place, and it would seem as though any right-minded bees would settle down at once to good honest work on finding themselves in such a home.

I fear that my bees were not right-minded, for the results did not justify the confidence that I had placed in them. I transferred and divided my other two colonies, or, rather, one of them, I should say; for as I was about to proceed against the other I found that they had just sent out a swarm which was waiting for me on a tree close by. I left the parent colony in their old box and hived the swarm, removing both to my new apiary. So I now had six colonies, and I became ambitious to get ten. So I told the boys that, if they would find some colonies of wild bees, I would give them a sixpence for each one pointed out. I had some qualms of conscience at the time for offering so little, and some regrets afterwards that I had given so much. I completed my ten colonies with rejoicings. Another year I would feast upon honey, I thought. But it is well not to count chickens before they are hatched, and not to eat honey before it is gathered.—H. D. Goodenough, *Clifton Springs, N. Y., January* 23. (*Gleanings.*)

WHEN DO MOST BEES DIE, AND WHAT CAUSES THEIR DEATH?

Everyone knows that during the time when the fields are full of flowers young bees are hatched in all healthy and populous colonies daily, not by hundreds, but thousands, every parent hive, as a rule, giving off one first swarm, and one or more second swarms, in which the work of increasing the population is carried on in a similar way as in the parent hive. If this went on continually the hives would soon be incapable of holding the large number of bees forming the colonies, and the country would in a short time be unable to support the number of hives in the different districts. But as it has

been ordained that trees shall not touch the sky, so it has also been wisely arranged that the number of bees in a hive, and the number of hives in a country, shall not increase excessively, for quickly as bees make their appearance they die off just as rapidly.

It is well known, when and how the largest number of bees and new colonies originate, but it is not so generally known—because it does not strike us so forcibly—when and in what manner most bees die. A discussion of this subject might not therefore be without interest to bee-keepers.

Very few bees, indeed, die a natural death from the infirmities of old age, unless we regard as natural that kind of death which finally overtakes them through inability of their wasted wings to carry the weight of the body any longer, when, especially during high winds, they fall fatigued to the ground at some distance from the hive and perish. When incessantly at work in the summer, the life of most bees does not exceed six weeks, but during the period of rest in autumn and winter and in queenless hives there is little or no change in the appearance of the bees, and they may then live for nine or even twelve months, of which any one may convince himself by allowing a colony to remain without a queen.

Baron von Ehrenfels, in expressing the opinion that worker-bees, escaping from all dangers which threaten their existence, might attain the age of the queen, must have been greatly deceived. The queen possesses much greater vitality than worker bees, and consequently lives to a greater age. Ehrenfels, however, is correct in stating that most bees die a premature and violent death. The largest number of bees are destroyed by their greatest enemy, the cold, partly inside the hive and partly in the open air. We all know that many bees die on the snow, especially when loose and of a dazzling white appearance. They fall to the ground and remain there, not only near their hives, but frequently at a considerable distance from it, as many a bee arriving half chilled will rise again and be borne away by the wind as long as it is able to move its wings. In the direction in which the wind blows the greatest number of bees may therefore be discovered lying on the snow. Most of them having cleansed themselves, it might be quite worth while to have them collected by children, and, after warming them a little, to put them into a hive which requires strengthening; their bodies must not, however, have been exposed to a cold at freezing point, which but too frequently happens when the sun is obscured or near setting, for in that case it will not be possible to revive them. Large numbers of bees perish in March and even in April, at which time they show an extraordinary desire for fresh pollen, which induces them to rush out of the hive every time the sun appears, and to venture on long excursions, during which they get chilled and fall to the ground, when the sun is hidden behind the clouds, or when the wind is getting cold. In spite of breeding the loss of workers at this time of the year is frequently so large as to make the colonies appear weaker at the beginning of May than at the beginning of March. In May and June, however, the population of every healthy stock increases from day to day, because the air has now become so warm that bees do not easily get chilled, when the sun rises to the highest point in the sky, our colonies, as a rule, have the largest populations, so large indeed do they become that in many hives there is a scarcely room enough for all the bees, and part of them are obliged to remain outside the hive day and night. But as soon as the days begin to shorten and the honey sources become scarce, the bees of the colonies which have remained undivided decrease at the same rate at which they increased previously. Now how is this visible loss in population to be accounted for, as on account of the still high temperature of the air but few bees get chilled, and being less active now they do not get worn out so quickly? Most of the bees which perish at this time, doubtless, become a prey to their numerous enemies. The number of bees snapped up by birds is exceedingly small compared to the number destroyed by their small, but more numerous enemies the field spiders, hornets, and wasps. The latter, which increase enormously if favoured by warm and dry weather, destroy an incredibly large number of bees, especially in August. The wet weather of the past summer, however, put a stop to their proceedings; and this explains why, according to all reports, the colonies at the end of the season, though they had accumulated but little honey, were found to be strong in numbers.

A good many bees, especially old ones, in their anxiety to collect as much honey as possible, no doubt venture upon long excursions to distant moors when no longer any pasture is to be found near the apiary, and overtaken by contrary winds or rain are unable to return to their hives.

We know that some bees, and often a great number die inside the hive, the cause in most cases being their not following the gradual contraction of the cluster of bees when the temperature is falling, but especially when, as often happens, cold weather sets in suddenly; they then get chilled and die unless restored to vitality by the application of heat within twenty-four hours.—Dr. Dzierzon, *Carlsmarkt*.

(*To be continued.*)

Cumberland (Harrington).—On Monday evening, March 25th, under the auspices of the Harrington Literary Association, Mr. Ebenezer McNally, the manager of the Co-operative Stores, gave an interesting lecture in the Victoria Hall, on the subject of 'Bees and Bee-keeping; how to keep bees for pleasure and profit.' The Rev. A. F. Curwen, rector, presided, and there was a good attendance. The subject was illustrated with views from a lantern, and these were greatly appreciated. A vote of thanks to Mr. McNally concluded the proceedings. At the close of the lecture various samples of wax, honey, and apiarian appliances, were exhibited and fully described.

Bee-keeping.—A lecture on this subject, illustrated by dissolving views, was given in the Girls' Schoolroom, Bury Street, on Monday evening, March 25th, by Mr. W. B. Webster, of Binfield, under the auspices of the Berkshire Bee-keepers' Association. The Rev. P. C. Bevan, rector of Marsh Baldon, presided. The Berks Association seems to have entered on a very active campaign for the purpose of disseminating authentic information respecting the denizens of the apiary. The Society has many influential supporters in the county, and there are a dozen or more district hon. secretaries, the Abingdon district being served in this way by Mr. Aldred, of Kingston Bagpuize. Mr. Webster dealt with his subject in a manner which showed his mastery of every detail. The lantern, provided by Mr. Cook, of Appleton, gave some excellent illustrations of the natural history of the bee. The lecturer showed how these busy insects are equipped for their life-work, and pointed out that the title of 'queen bee' was a misnomer, she being merely the mother bee, whose duty was rather to lay eggs (from two to three thousand per day) than to exercise any arbitrary authority. As to the sting of the working bee, he observed that this was a drawback to bee-keeping, and the only remedy he knew was to 'get used to it.' In the season he was frequently stung thirty times a-day, but being accustomed to it he scarcely felt any ill effect. He confuted the idea that the sting of one bee could cause death. Details of the various departments of bee-management were given by Mr. Webster, who in conclusion commended the Berks Association to the support of those present. The meeting closed with the usual votes of thanks. Similar lectures have been given at Faringdon and Steventon.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

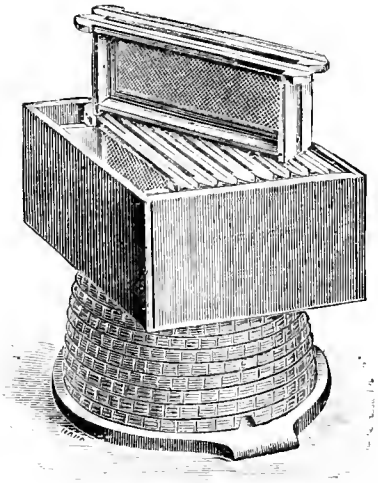
Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 2nd page of Advertisements.)*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

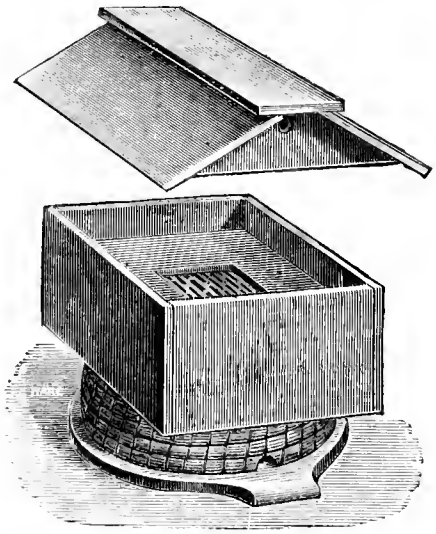
THE COTTAGER'S NEW SUPER FOR STRAW SKEPS.

[2042.] The engravings here shown are intended to inaugurate a new feature in cottage bee-keeping. Hitherto supers on skeps have been almost exclusively planned for obtaining comb honey, but here is an adaptation for enabling the cottager to obtain his produce in the form of run honey. The present arrangement may therefore be said to be a step in advance. By placing ten of Lee's patent shallow bar-frames in the deeper portion of the box or cover, honey suitable for extracting will be stored, and, after the combs are sealed, may have the liquid honey extracted in the usual way.

The frames are 6 in. deep, broad-shouldered, and admit of full sheets of foundation being fixed firmly on the principle of Lee's patent, now so widely known. In winter, or when the harvest is over, these frames may be removed and the boxes inverted, when the deeper portion of the box drops over and covers the straw skep, thus protecting it from cold and wet. It will be seen that the square hole in the centre is covered with queen-excluding zinc, and when feeding is required, a bottle feeder may here be applied, or a sugar-cake can be placed. There is also plenty of room for a quilt, and when surmounted by the roof as shown, all may be kept snug and well protected.—Alfred Neighbour, *London.*



Summer arrangement.



Winter arrangement.

PACKING COMB HONEY.

[2043.] Please accept a comb packed in a small box as a specimen of the method adopted on my recommendation in St. Petersburg for the sale of honey in the comb. I find the boxes very convenient, and at the same time practical, more especially for bee-keepers who prefer working supers to sections. In order to enable all to sell their honey to the best advantage, I also allow the addition to the comb honey of extracted honey. In this case the glass must be cemented on the top of the box, with instructions not to turn it over. In order to open the box pass a knife under the glass. Two or three completed combs can be packed, if desired, in the same box. Cheap boxes are made at home, and are more modest in appearance than the one I send you.—A. M. Zoubareff, *St. Petersburg, March 5th,* 1889.

[The piece of comb honey our correspondent has been good enough to send us arrived by post in perfect condition, after a journey overland of upwards of 2000 miles, which speaks well for the method of packing adopted. The comb is 6×4 inches, and is placed in a card-board box lined with vegetable parchment. The box is one and three-quarter inches deep, and the lid which fits over it is glazed with ornamental lace paper round the edges, giving it a very neat appearance. The space between the comb and lid is filled with a cushion of tissue paper. The card-board box fits into a dovetailed deal box, three-sixteenths of an inch in thickness, the top of which is fastened by four wire nails. It is a very neat way of sending honey by post, and one that might be adopted by those who work supers.—Ed.]

TRANSFERRING BEES FROM AN AWKWARD POSITION.

[2044.] I enclose an imperfect sketch of a window, outside which a swarm of bees have for three successive years settled and built their comb. I should be very grateful if you could give me a little information on the manner one should go to work to hive them. I have advised my friend in whose unused kitchen window the bees have settled, to get them transferred to hives; but we can hear of no person capable of giving instructions. It seems such a pity to allow such a waste of honey and lives of bees as occur every winter. The window-sill is strewn with thousands of dead bodies of bees, which the frost has killed. Those which remain alive, of which there are great numbers, are clustered about the centre of the combs. Do you think it would be possible to hive them? and if so, how? The combs are thirty-two inches in length from top of window. The space between the panes of glass and the wooden shutter (to both of which they are stuck, consequently the window is never opened)

is about eight inches. They enter at the bottom of the outer shutter by a crevice between it and the stone upright. May the waste comb be cut off, as, of course, no skep could be found tall enough for them as they are? If you can propose a simple way of going to work I should feel obliged by your writing me as soon as possible, as I suppose one ought to begin before the bees begin to sally forth, which I fear they will do very soon, as the window faces south-east, and the sun's rays will attract them.—James Brewer.

[The above has been submitted to Mr. Hooker, who has suggested the following method of transferring the bees.]

The bees that have built between the casement and the shutter of the unused window should be transferred to a frame-hive. This should not be done yet, as the combs would be very brittle, until the weather is warmer; the bees would then be more easily managed, and be better able to fix the combs into the frames when transferred. In addition to this, if done about midday during the first honey flow, a large number of the bees will be collecting honey, and away from the hive.

The chief difficulty arises in the combs being attached to both window and shutter, as the opening of one or the other would in all probability break the combs in an undesirable way. The most ready way of commencing would be to take out or break one of the panes of glass; not one of those to which the combs are fastened, but that next to the handle that fastens the window. This being removed, all the combs could be separated from the glass with a long knife, so as to allow the window to be opened without further injury to them. As it appears from the letter of your correspondent that he is quite a novice in these matters, it will be necessary to go fully into detail, so that he may have every chance of succeeding.

First of all, then, he must get a frame-hive and arrange a place in his garden in which he wishes them to be ultimately placed. He must also be provided with a smoker and a bee-veil for himself and one for the person assisting him; and I would here say that it is always best to wear a veil, however experienced you may be in the manipulation of bees. The stands should be fixed in readiness to receive the hive at the proper time. The hive, with a temporary board under it, and the smoker, properly lighted, should be placed on an old table in the room conveniently near to the window, a knife, and some tapes cut into pieces long enough to go round the frames when the combs are placed in them, must be at hand, so that there may be no delay during the operation. Great care must be taken in handling these long combs, or they will break whilst taking them down. A piece of thin board, half an inch thick, would do, 7 inches wide, and about 2 feet long, with a piece nailed across one end, projecting 1½ inches to form a ledge for the combs to rest on while being removed. Having everything in readiness, proceed as follows:—Remove the pane of glass, give a few puffs of smoke to prevent the bees flying, and then with a long knife, such as is used for carving a round of beef, kept as close as possible to the glass, you would be able to reach far enough to disconnect the combs from the glass, pushing the knife backwards and forwards with a sawing motion, cutting upwards from the bottom of the combs. If the combs are fixed at the top and to the shutter, being severed from the glass will not disturb the position of them when the window is opened.

The board must now be placed against the first comb, and raised until it rests on the ledge; then pass the knife up between the shutter and the *first* comb, taking care not to cut or disturb the next one; then disconnect it at the top, and leaning upper part of the board towards you, remove it to the table, comb uppermost. The comb should, beginning at the top, be cut into pieces the depth of the insides of the frames, and trimmed square at the sides so that two of them will fill one of the frames of the hive, in which they should be secured with the tapes, care being taken to keep them the same way up as they were built. Any drone comb, *i.e.*, comb with larger cells, or any irregularly built comb, should not be used. Put these frames of comb in the hive, and move the hive to the window, underneath the remaining combs, securing it in position close against the shutter, raising it with a wedge from the board, so that the bees can get under. The smoker, being well lighted, should now be used to drive the bees down from the remaining combs and into the hive containing the transferred combs.

The smoke must only be blown in at the top between the combs, not too much, only sufficient to alarm them and direct them in the way you want them to go, and when once they begin to start leave them alone if they are going as you wish them. No time should be lost in removing the remainder of the combs, which the bees will soon have left, and dealing with them in the manner first described, putting them into the hive when fixed in the frames. Should there be any disposition on the part of the bees to run back to the top, they must be driven down with smoke. Cover the hive over with a cloth, and in a little while they will accept the new position and set to work and fix the combs in the frames. The outer shutter must not be opened during the day on which they are transferred, and the crevice left for them to come in as usual. The hive so placed, in the first instance, that they can find their way in.

They should be left in this position till the evening, and they have ceased to work. An examination should be made to ascertain if all the bees are in the hive; and if there are any little clusters, they should be brushed down, or on to a piece of paper, and shaken on to the floor-board, when they will run under the hive. The top of the hive should be securely covered, and the wedges under removed to let it down on to the floor-board, and the entrance stopped. If there are a few bees around that prevent this, they will soon run in if a *little* smoke is given. The bees being secured top and bottom, should now be removed to their permanent position. The hive should be raised all round on pieces of wood an inch thick on board; and if left in this position half an hour, all the bees will be clustered up in the hive, and this temporary floor removed, and the hive adjusted with its proper entrance. In three or four days the frames should be examined, and the tapes removed from those that have the combs fixed.—John M. Hooker.

DISEASED BEES.

Eradicating Foul Brood from the Apiary, &c.

[2045.] In the *American Bee Journal* for March, 1888, I wrote my experience with foul brood, and how I eradicated it from my apiary. Thinking that some at least might wish to know what success I had, I will repeat the treatment.

I put the bees into empty boxes for two days, scalding and cleansing the boxes effectively.

I then put them back on full sheets of foundation, destroying all combs in which there had been any brood, and saving all the nice, white outside combs, some of which were only partly drawn out. I treated all but two colonies, at the time they appeared to be only slightly affected, but they soon became so bad that it became necessary to treat them the same way.

From the two colonies I took eight frames of brood, with a few bees, and put them into an empty box, and they are there to-day, as free from foul brood as bees can be. They were without a queen for at least five weeks, and, being weak, consumed all their honey, of which they had a very little. At first I fed them with syrup, and afterward gave them two frames of bees and brood from another colony, and in the fall it was as

strong as any colony I had. Last spring that was the first colony I divided, and very soon I had two good colonies, both of which stored considerable surplus honey.

After this colony, without any aid whatever, had cleansed their own combs, and was rid of foul brood, I thought, Why can I not use the combs I had saved after fumigating frequently and effectually with sulphur, and spraying with carbolic acid? I then gave the nicest of these combs containing no honey to several colonies, without any bad results whatever.

Whether there is anything in it or not I will not pretend to say, but I put a small camphor poke on top of the frames of each colony, and fed a little sulphuric acid through the summer, with an occasional spraying with a weak solution of carbolic acid, the bees at the entrances of the hives. After getting through safely so far, I was foolish enough to risk still further, by giving to a very late, small second swarm six frames (the last I had), some of which contained some of the old honey; I sprayed them all with carbolic acid, but did not uncap the honey, neither did I use any camphor nor give them any attention whatever. Some time afterward, when I examined them, in taking out the second frame, oh, the infernal foul brood! How I regretted using combs with the honey in; being taught when a boy not to 'cry over spilt milk,' I concluded to do the best I could under the circumstances. I immediately took away the queen, and I suppose for some time I troubled them with more sulphuric and carbolic acid than was agreeable to them. I afterward gave them a queen, but being late, and the weather cold, they reared no brood. I do not fear but what they will come out all right.

I put them into the cellar the last of November, without one drop of honey in their combs—they are living on sugar-candy, and doing first-rate. However they may come out I cannot believe that either the queen or bees ever become affected, but if kept two days in empty boxes, then put into perfectly clean or new boxes, there will be no return of foul brood unless they get access to foul-broody honey.

The afterpart of the summer here was anything but agreeable or profitable to bee-keepers. There was no buckwheat honey; fall flowers would have produced abundantly, but the weather was so wet and cold, that the bees could not harvest it. The winter has been open, wet, and warm—favourable for outdoor wintering. My bees (over thirty colonies in all) are resting very contentedly in the cellar, without giving me any concern whatever. I have them right under the kitchen, where we keep potatoes. Some of the family go in with a light every day, and neither that nor the noise from above annoys them in the least.—SAMUEL BARNHART, *American Bee Journal.*

EXPERIENCE.

[2046.] I have for some time (about four years) been a subscriber to your very valuable *Journal*, but never a contributor. Now I have been thinking lately that if everybody did as I have done, the *Journal* would want in variety, and it is said that 'variety is charming.' Now, sir, if permitted, I would like to add a few items of my experience as a bee-keeper with a view to help others (for it is a fine principle, 'Bear ye one another's burdens') and to the saving of time and money,—two items valuable in their way. I commenced with two stocks of blacks, and the first season I removed some seventy miles, taking them by train in October packed in bar-hives and put in truck with furniture. They arrived safely, when, after all trouble, they were completely upset off their stands by one or two trespassing donkeys. I put them together as well as I could, and they suffered from dysentery, but did fairly well. That year I got a Ligurian queen from Mr. Abbott, and had I not done so I would be 'against' Ligurians, as I purchased several queens of the same race from other dealers, and they were, without exception, failures, and I have little doubt were hybrids of some degree or other; but my one Ligurian filled a hive such as I never saw before or since, and worked long after the blacks in the evening. I took 170 one-pound sections in three-quarters of the season, and they had, I am sure, fifty pounds in the brood chamber. I had four or five crates of sections on at one time, and bees working hard in them all. I had again to change my residence, a distance of about a mile and a half, in July, and to clear out my stocks of bees and bring them immediately. Alas! it was simply destruction; this grand queen was killed, the combs melted, and general destruction took place, not to speak of the whole neighbourhood being stung, dogs, cattle, and people, and the men who came to carry away the furniture had to give up work and go. I found when I took off the crates that the bees would not fit in the body-box or brood chamber, so had to leave them out; this caused a general stinging of everything.

What I wish espceially to mention is foul brood without much bad odour, but very evil effects. I first found it in one of the original stocks, but it is in the district well rooted and petted, I am afraid, by some who have it amongst their bees. I should have immediately destroyed the stock, 'lock, stock, and barrel,' but tried cures, &c., and ended in having it in all but two or three; the extractor, too, helped on the bad work; besides also, my ignorance of the frightfully contagious nature of the disease (I knew it in theory well, but practically I had none). I made hives and bought them also, and these now owing to the dire disease are decidedly dangerous.

To sum up I would say if foul brood is in the district make cheap hives, Ceylon tea-chests will be good enough. Don't try cures, but stamp out the diseased stock by utter destruction, and keep all combs at all times isolated to the hive to which they belong. The system of changing combs is bad, and the extractor is to be avoided in such a district. I could enter more minutely into many circumstances, but I hope what I have said may be of interest to some.—J. GORDON BARLOW, *Clonmel, 27th March.*

SHALLOW FRAMES, &c.

[2047.] Does the writer of 2024, p. 117, on shallow frames, seriously think of using them in preference to the 'standard,' or is he thinking of adopting the advice tendered by some of the recent writers on the subject, of using them above the 'standard' for extracting? In either case, read Mr. Cowan's 'Choice of a Hive,' p. 110, particularly the part relating to the subject at the bottom of p. 111. I think it is a well-known thing now, that with deep or shallow hives the yield is about the same; but with shallow frames there is more work, less control over swarming, and, besides the fact of being more expensive to build, owing to the necessarily increased number of parts, bees do not winter so well on them as on the deeper frames. Mr. Simmins, in his *Modern Bee Farm*, suggests a much larger frame for wintering on than the 'standard.' Apart from all this, the Association fixed on the present 'standard' as fitting the hives most used, and also the most suitable on all counts for all purposes in an apiary; and I think it can only be hurtful to the object we all have in view, viz., of getting the cottager to take up humane bee-keeping, to advocate different sizes of frames. I say so advisedly, as I hope to hear of cottagers selling nuclei in addition to their honey, and there can only be a good market for them when all use the same size frames. If proper precautions are taken, bees will store above at the sides of the brood-nest, and whether deep or shallow frames are used, an inch or two down will be used for storing pollen (a rather necessary article, especially now).

A word of advice on the subject of wintering. This past winter I have tried wintering on two sets of 'standards,' one above the other, and, in spite of abundance of stores, the colony died. I am not going to try it again, although it may be owing to some other cause, coupled with the fact of such a year as 1888; but I am of the opinion that the half-inch air-space between the top and bottom bar-frame must be prejudicial to the well-doing of the colony during winter. The use of excluder zinc, unless it is on hand, is not altogether necessary, as, if going in for comb honey, if the bee-space allowed below the sections is not more than a ¼ in., and none but worker comb allowed in the sections, the queen will find plenty of room below on ten bars ('standard') without going above for laying, and the bees will take to the sections better without its use. I can only account for it in that with it they have to go through too narrow spaces, and the cluster in the sections is, as it were, not in touch with the cluster below. I have found excluders of great use in going in for extracted honey, as by their means the queen and pollen are kept below, and the honey thus comes clean to the extractor. To get the bees to work above, all that is necessary is to take a bar of brood from below and place it above, taking care not to take the queen as well.

As far as black paint is concerned, as I have others to consult besides myself, it would not do for me to have an eyesore in the garden. As far as colour is concerned, I am perfectly well aware of the fact that '*Quot homines, tot sententiæ*' (as many men, so many opinions) if black is desired, why use Carson's black paint, a mixture of tar and spirits, and used chiefly for iron hurdles? Why not use oil colour, so that, if so desired, the colour could be changed? Apart from this, was it quite rational on the part of Mr. 'Useful Hints' to throw niggers and our black clothes at my head? In the case of the 'tar-brush,' I believe race has a good deal to do with it, and as far as I am concerned, I find I am coolest in cricketing flannels and a straw hat (equal to white or stone colour), so I try to paint my hives to copy my clothes.

To finish up, I should very much like to see, in the correspondence about our little favourites, when any assertion is made, that such data should be given as whereabouts the apiary is, what pasturage and duration, sort of bees, pure or hybrid, &c., as all these are concomitants necessary to prove its correctness.—JERSEY BEE-KEEPER.

AMATEUR HIVE-MAKING.

[2048.] I was very pleased to read 'Village Blacksmith's' remarks on the above. I am a bee-keeper, and make my own hives. The tools I use are,—hand-saw and tenon saw, jack-plane, hammer, chisel, and brad-awl, square, and rule; these are all I use. For hive-making I use red or yellow pine in body-box, ¾ in. thick; for the roof I use boxes from the grocer. I break them in pieces and nail on roof; I cover this all over with thin sheet-iron—it costs me about one shilling here. There is no fear of rain driving in on my bees. I have used wood for roofs, but find the sheet-iron best, as the sun is very trying to the wood in my garden. I always use the dark stone paint, as I am told it is the best. I shall be glad to see this matter taken up in the *Journal* from an abler pen than mine, so that it may be useful to all cottagers and bee-keepers.—AN AMATEUR BEE-KEEPER.

TO PREVENT THE SPREADING OF FOUL BROOD.

[2049.] There is now an opportunity of, in some degree, preventing the spread of foul brood. We hear on every side, from the *B. B. J.*, the *Record*, and from many private friends, of the great mortality there has been among the bees of the cottagers, and those who failed to take the advice given in 'Useful Hints,' or by experienced frame-hivists, to feed up the stocks in the autumn.

It is reported by many of the experts, who make a tour for their respective Associations, that foul brood is prevalent in many districts. The well-organized County Associations will be doing good service to all bee-keepers if they will, through their district secretaries, their committees, and their experts, see that the combs from the hives in which the bees have died are melted down, and the skeps destroyed; or if frame-hives are in use that they are thoroughly cleansed, either by boiling or by being scraped, and disinfected by being washed with a strong solution of carbolic acid.

Some arrangement might be made to give sufficient comb foundation to the cottagers in return for the old combs, to use as starters in the frames. A large quantity of combs could be collected in this way, and rendered down into bees-wax by any one having or extemporising a wax-extractor. This wax, when made into foundation, would be quite freed from any infection. Any manufacturer of comb foundation would make it up for a small price per pound, or exchange foundation for it.

If something of this kind is not done the old hives and combs will be left as a snare to the few probably healthy bees left in the districts, who will be tempted in the early season to forage in them for pollen, or what they can find, and so carry home the germs of foul brood, should it have existed in any of the hives. This, I venture to think, will, if carried out at once, do much to rid many localities of this fearful disease, as, in all probability, most of the stocks having foul brood will be among those that have succumbed. All those interested in bee-keeping could in this way do much in their own neighbourhood to assist the Associations in stamping it out.

Whilst writing on the subject of foul brood, I wish, Mr. Editor, to call your attention to a very excellent article on this subject in the *American Bee Journal* of March 2nd, page 134, 'Experience with curing Foul Brood,' by A. A. Baldwin. The plan he proposes I entirely agree with, and I think your readers would be benefited by your copying, if not the whole, the latter half of the article in the *B. B. J.*—JOHN M. HOOKER.

ANOTHER AMATEUR'S EXPERIENCE, &c.

[2050.] You have received so many of the experiences of amateur bee-keepers to almost return them labelled 'Declined with thanks.' But perhaps you may find space for one more—a new-fledged one.

I only commenced bee-keeping last spring by buying a stock in a straw skep. I had long before seen the bar-frame hives, outside only, but could not get a look inside one, none of my friends being bee-keepers. At last I came across one who had a copy of *Modern Bee-keeping*, which he lent me. I then got on the right course; my intention was to have the bees transferred to a bar-frame hive after I got one made.

With a little knowledge of joinery and a good bit of perseverance I succeeded in making a good strong twelve-frame hive, double walls all round, with legs built between inside and outside walls, frames at right angles to entrance, which way, I am convinced, is best. Why I say so is from what I have seen (and read in *B.B.J.*); the natural instinct of bees to build at or almost at right angles to entrance; better ventilation is secured, and no fear of entrance being blocked by dead bees, &c.

About Whitsuntide the hive was completed, painted, and ready for a swarm, but no swarm did I get—the bad season the cause, I suppose. As no swarm came, I decided to drive stock. August 31 I proceeded to drive. I had previously noticed when I had a box on the top of skep that, when examining them, they would rush out and cluster about the entrance; from that I got the idea

that by placing skep on top of frames in frame-hive the bees would drive down, with the smoker, of course. I tried that, and you will guess the result—utter failure. After I smoked in at feed-hole in skep I dared not lift the skep off, so gave up for that night, as it got almost dark, went home with a rather sat-on sort of feeling. The next night we were bound to have them dislodged. My friend, in whose garden I have the bees, said we would take them out with a spoon before we would be beat again. Now we followed closely the instructions in *Modern Bee-keeping*, and succeeded quite easily. There were only three or four pounds of honey in the skep, and all the combs old and black. We started the bees in new hive on seven frames, with full sheets of foundation; the next evening, a wet one, put a feeder on, a borrowed one, fed regularly for nine or ten days; a few days after, when passing the hive on a very fine afternoon, was at a loss to know why very few bees were flying—only a straggler now and then. My friend paid particular attention the following day at noon, and found them flying about the same; so I gave them some more syrup that night, knowing it could do no harm if no good.

My friend again looked at them the next day, and told me they were flying strong. After that I fed a small jugful of syrup each night. I am quite of the opinion my bees would have perished had I not given them more syrup just in the nick of time; so, amateurs, beware—for a small outlay in sugar you may save your stocks.

I calculate I had given about a stone of sugar in syrup. I had by that time got a tin float feeder, made to hold half a gallon for fast feeding. I lined inside and outside of tube where bees pass with a thick shaving; I have seen objections to the bare tin. I then fed up fast for winter, giving a stone of sugar in syrup at three times, and then, afraid of pinching them, got half a stone more and gave another feeder full; they then filled the tube in feeder with comb. I examined them, and found nearly all combs full and sealed, and beautifully white and clear. I thought they had had enough, so took feeder off, very little having gone out of it; they have wintered well so far, but we are only now getting our real winter, the weather up till a week ago having been more like spring. I have given the bees a small sugar-cake, and will give another on disappearance of first one. I must not now lose my bees for a little sugar.

I saw in *B.B.J.* about the show at Lancaster in September; I had never had such an opportunity of seeing anything of the kind before, and I went, I may say, expressly to see the honey tent, and well pleased I was with it. At that time I was troubled with earwigs in my hive, so I spoke to the gentleman who lectured on driving, &c.—Mr. Carr, I believe; he assured me they would do no harm. I told him I had seen in *B.B.J.* that earwigs could fly; he said the same, but that I have yet to see. I tried about half-a-dozen by putting them on the garden walk, and made a ring of tar around them, but none of them attempted to fly; they stuck in the tar or so smeared themselves that there was no danger of them getting back to the hive. I have not seen that they do any harm, but would rather they were not there.—Canny Cumberland.

Spiders and Bees.—I have a very queer thing to report which you may make use of in your columns if you think it is worth it. It happened in my apiary to a straw skep. The skep was in full swing, with plenty of bees on 1st or 2nd of March, and feeding off candy, and I noticed that there were just outside skep a few skins of bees (workers). I ought to have told you that my skep stands inside a box-hive. On further examination I discovered one or two webs (spiders'), which I destroyed. A few days afterwards I opened the box-hive, and found a double handful of skins of bees again; and waiting a minute or so I killed a large spider. Next day I examined again and found more bees' skins, but could not discover any more spiders. A few days ago I examined again, and found that bees were not working, so gently tapped and found that no hum could be heard, so I gently raised the hive and discovered on the floor-board a quantity of bees' skins similar to the others I have mentioned. Of course, then I lifted hive high enough to see right under, and further discovered that it contained not a single bee; so, of course, I conclude that the whole stock was destroyed by spiders.—A. J. W.

A Correspondent requests 'Peter Bois' to write to the *Journal* as to his *modus operandi* in management of his shallow hives. 'His communication in this week's *Journal* must make bee-keepers generally thirst after the knowledge that he possesses, and which I seek. How does he get such stocks, that he is obliged to rob them a little in order to be able to get the bees sufficiently down to be crowded into wintering quarters?'—C. N. P.

An Inadvertence.—*Recipe for making Bee-candy.*—On p. 142 (2038) appeared a communication on making bee-candy signed 'W. R.' This was forwarded to us by a correspondent with a request for its insertion. We inadvertently supposed the recipe to have been the result of the experience of our correspondent. We regret that we did not recognise in the matter, manner, and signature those of the late co-editor of the *Record*. We should be obliged by our correspondent in future acknowledging the source from which his information was taken.

Echoes from the Hives.

Alderley Edge, Cheshire, March 24th.—A nice sunny morning. Wind S.W. Bees busy on the crocuses, so I thought I would have a peep at my live stocks. Three were all right and seemed to have plenty of food, but I gave them each a cake of candy by way of precaution in case of spell of cold weather. One lot, a very weak lot when I made it up in October, and which I ought to have inspected, was dead from cold evidently, as there was plenty of food in the combs; and another appeared to be queenless, as there were only a handful of bees left and plenty of food.—T. D. S.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

F. Wade.—*Transferring.*—Do not transfer until middle of May, and then only during warm weather. You can give the frames of sealed stores to them at once.

John Watson.—*Moving Bees.*—This could be done with perfect safety. Tie each of the combs into the frames with tape, the same as if transferring. Cover the frames with perforated zinc instead of quilts; if cold weather, only partially so. Cover entrance with the same, and screw the frames down tight to prevent swaying and crushing the bees. Water can be given in a sponge placed on top of zinc; it would be better to give it to them.

A Lover of Bees.—1. *Queenless Hive.*—Your hive being very weak and no pollen being taken in is an almost sure sign of queenlessness. Unite to skep as soon as fine weather sets in. 2. *Finding Queen.*—You would lose a lot of bees unless you placed a frame of brood in the empty hive. It would be a very good way of lessening the population, so the queen could be more easily seen. 3. *Glucose.*—This will not

candy like honey. 4. *Obtaining as much Honey as possible.*—Read the manuals now published upon bee-keeping.

THE VILLAGE SMITH.—*Foul Brood.*—To all appearance the sample forwarded was healthy. If convenient, we shall be pleased to receive an account of your experience.

LOUIS LAMBERT.—1. Please communicate with Mr. R. A. H. Grimshaw, Horsforth, near Leeds, who will advise you as to the Association most convenient for you to join. 2. You must not depend on the flowers of your garden for the support of your bees, but on the broad fields in your neighbourhood.

WOOD GREEN.—The result of our inquiries indicates that you will find the locality to which you are about to move very favourable for the culture of bees.

JOHN PERRY.—Your feeder has been received, and will be noticed.

A few queries are postponed till next issue.

Received from John Moore, Prospect Farm, Warwick, his Catalogue of Bee Appliances; also, his Catalogue of kitchen garden, flower, and farm seeds.

SHOWS TO COME.

BEES, HIVES, HONEY, ETC.

June 24–29.—Royal Agricultural Show at Windsor. Entries close May 1st. Secretary B.B.K.A., J. Huckle, Kings Langley, Herts.

Business Directory.

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Editorial, Notices, &c.

BRITISH BEE-KEEPERS' ASSOCIATION.

INSTRUCTION TO CANDIDATES

FOR THIRD-CLASS CERTIFICATES OF PROFICIENCY IN APICULTURE, AWARDED BY THE BRITISH BEE-KEEPERS' ASSOCIATION.

Candidates for third-class certificates will be examined in their own counties, or elsewhere, between May 1st and September 30th in each year, after giving notice to the Secretary of their affiliated Association, as early in the year as possible, of their intention to offer themselves for examination.

The examination will be by manipulation of frame-hives and skeps, and by word of mouth.

The order in which the subjects are to be taken is left to the discretion of the examiner.

1. MANIPULATIONS.—*The handling of Frame-hives will include:*—Carefully withdrawing and returning each frame, with little or no disturbance or breakage, with expedition and neatness of operation, and speedily finding and pointing out the queen to the examiner; also turning, bottom-bar upwards, a frame containing brood. All operations to be quickly, neatly, and quietly performed, without jarring, shaking, or disturbing the bees, and with the use of as little smoke as practicable. No protection to the hands will be allowed, but veils may be worn.

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11. Queen introduction, fertile workers, and uniting colonies.
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13. The honey-yielding plants of Great Britain.
14. Technical terms used in apiculture.
15. Packing colonies in skeps and in frame-hives, both with and without combs, for transit by rail or otherwise.

The books recommended are *Modern Bee-keeping*, by post 7*d.*; Cowan's *British Bee-keepers' Guide*, paper covers, 1*s.* 6*d.* To be obtained of Mr. Huckle, Kings Langley, Herts.

Any other standard works may be consulted, such as Cook's *Manual*, Root's *A B C of Apiculture*, &c., &c.

BRITISH BEE JOURNAL.

We are pleased that our proposition to reduce the price of the *Journal*, after the 1st of July, to one penny, has been received by all connected with bee-keeping with approval. It has been accepted as an assurance of determination on our part to uphold to our utmost the industry of bee-keeping. We feel grateful for the many promises of support we have received. In taking this step, we feel that we may safely rely upon the assistance of the whole body of our subscribers. We desire more especially to invoke the aid of all the officers of county and district associations. We shall be pleased to supply both specimen copies of the *Journal* and also handbills for general distribution. Application to be made to Mr. J. Huckle, Kings Langley, Herts.

USEFUL HINTS.

WEATHER.—Cold winds, frosty nights, stormy at times, and little sunshine, is our report for the last fortnight. Consequently the bees have done very little in pollen-gathering, and have been drawing heavily upon their stores.

LOSSES in abundance are still reported. Many who prided themselves on having saved a few colonies a month or six weeks ago write despondently that all have perished. After breeding commenced an unusually cold period of several weeks' duration compelled the bees to contract their cluster, and so brood perished. Then followed a dearth of bees, cold hives, and in many cases, we fear, a lack of food, the result being the loss of colonies which were considered safe. So great, indeed, has been the destruction of bee-life that extensive districts are entirely depopulated as regards bees, the only exception being the apiaries,—few and far between, alas!—of those who have worked on modern

principles, and have carefully nurtured their colonies during the terrible trial through which all have been compelled to pass. According to our belief no such scourge, as the weather of the last twelve months has proved to be, has ever been experienced by bee-keepers in this country; and what will the consequences be? The absence of the beneficent work of the honey-bee in fertilising the various crops, upon which they labour so industriously, will be felt in too many districts in a decrease in the fruits of the earth when the harvest comes. And how will it fare with the numerous firms of appliance-dealers called into existence by the extraordinary progress of apiculture in these realms during the last ten or twelve years? We can hardly expect the call for hives and other articles used in the apiary to be so great as formerly. If one member suffers all the members suffer. There is no escape. Each man must bear his own burden, and he who endures will eventually succeed. The great light of apiculture which has arisen of late years in Great Britain and—may we not also say—in Ireland, is not to be put out by one disastrous season. Let all take heart, therefore, and, instead of flagging zeal, let us redouble our energy in the good cause. Time, no doubt, will be required in order to recover lost ground, but there cannot be the shadow of a doubt that the ground will be recovered. Apiculture has come to stay, and, with all our scientific appliances, it cannot fail to become a paying industry.

Soft Candy.—In the *A. B. J.* Mrs. Harrison gives the following recipe for making 'Good's candy:'—'Heat liquid honey until hot, but not up to boiling point, and stir in confectioners' sugar until it will absorb no more, when it can be made into cakes with the hands. This candy will not be sticky, yet keeps soft and moist, so that bees can feed on it. A cake of it can be slipped down into the cluster, and the colony be saved from starvation without being aroused to undue activity, as it would be by feeding on liquid honey or syrup.' For weak colonies at the present time no better food could be devised. No escape of heat can take place and the quilts are not disturbed by the use of this candy, as they must of necessity be by the use of the bottle or other top-feeder.

Wired-Foundation.—Captain Hetherington, of New York State, who is said to be the largest bee-keeper in the world, was the inventor of the flat-bottomed wired-foundation manufactured by Messrs. Van Deusen & Sons, of Sprout Brook, New York, upon which he still receives a royalty. For brood-frames we have used no other foundation for years, and have repeatedly recommended it to our readers. We continue to think it unsurpassable. Mr. Cowan, on his late tour in America, visited Captain Hetherington's apiary and expressed himself much pleased with all he saw. An interesting life of the Captain, with an excellent engraving of his home, is given in *Gleanings* of March 25th. The importance of the wired-foundation is becoming more apparent as time passes, and there is little doubt that it will soon take rank as one of the greatest inventions of modern apiculture.

Hives.—Another new, and this time a patent, hive is presented to our view. We allude to Mr. Howard's 'Paragon Bee-hive,' as described by 'Dunbar' (No. 2039, p. 151, *B. B. J.*) Is it too much to ask that we may be favoured with an engraving of the hive? Failing this, it is hardly possible to form a correct idea of the principles introduced. Its claims appear to be:—1. Confinement of the queen to the brood-chamber. 2. Adaptation to storage of comb-honey in sections, and in shallow frames for extracting. 3. The prevention of swarming by the use of nadirs and supers. The queen and drones are excluded from all surplus arrangements by means of honey-boards, formed of the latest improved queen-excluding zinc,—the 'Registered Raynor,' manufactured by Messrs. Harvey & Co., of the Lewisham Works, which has long perforations, triangular at their extremities, and admitting of free passage for worker bees only. The principle of compelling the bees to build comb in sections or shallow frames (from which the queen is excluded), *beneath* the brood-chamber, and then removing crate, combs, honey-board, and bees to the *top* of the same chamber, at the same time placing a similar empty nadir below, is a new feature which we are inclined to think may prove successful in discouraging swarming to a great extent if the surplus cases are applied before the swarming fever commences. Otherwise, since free exit from the brood-chamber to the outer air is provided for queen and drones, swarming will hardly be checked, much less prevented. Well knowing the devotion of Mr. Howard to the science of apiculture, his energy, and practical ability, we augur favourably of his new venture, and trust that some of our foremost apiarists may give his system a full and fair trial in the good season (which we hope is) coming.

Combs, of not more than two or three years old, before use, should be shaved down to the thickness of seven-eighths of an inch, a bee-space only being allowed between the frames when put into use. To relieve them of dried pollen, dead bees, and candied honey, place them in tepid water for a minute or two and pass them through the extractor. Next spray with carbolic acid solution (see former Hints) and dry them in the open air. Swarms hived upon such combs will have a decided advantage over those placed on frames primed with starters, or even filled with foundation.

The chief point on which care is required is the certainty that combs so used are free from the contagion of foul brood.

Increase, we suspect, will be more in favour with the majority of bee-keepers, during the present season, than the production of honey, and will prove more lucrative, since the gaps in our apiaries must be filled up, and the poor cottager's garden restocked with a hive or two. We commend the devising of some plan for the latter purpose to our County Associations. Early swarms are most desirable, and to obtain these contraction is necessary. A colony limited to eight standard frames will progress more rapidly and swarm earlier than the same colony would on ten frames, other conditions being equal. A regular supply of food, and warm coverings, will also conduce to the same end. All manipulation should be avoided, and the hives should be well sheltered from west round by north to the east, and open to the south, so that every ray of sunshine may reach them. These remarks apply to natural swarming, in preference to artificial or 'dividing.' One advantage of early swarms is, that second, and even third swarms sufficiently strong for winter may be obtained by proper management from the same colony. By division, however, bees may be rapidly multiplied. We sometimes have taken a strong colony, and divided it into six nuclei, allowing a good sealed queen-cell to each. Each nucleus reared its queen, which mated and soon filled its four-framed nucleus with brood. To these nuclei driven (so called condemned) bees were added in the autumn, sufficient in number, together with the nucleus bees, to cover eight frames, and thus an increase from one to six strong colonies, each having a young and prolific queen, was accomplished. From a patriotic as well as a pecuniary point of view, increase is most desirable.

It is a much easier affair to import honey than bees in quantity. Therefore we say go in for increase. No matter what the race, increase. For Italian or Carniolan queens we must wait until our apiaries are again recuperated. Foreign races must be an after-thought, and importation of queens is easy.

Feeding must be continued without intermission. It is, indeed, of the utmost importance now that all colonies should be kept progressing, as the calls upon stores become greater daily, and numbers increase, while there is no income of honey from the fields, and little

pollen, owing to the lateness of the season, frost and cold winds being still prevalent and forage scant. This lateness in the appearance of the spring flowers, and blooming of the pollen-bearing plants and trees, is most unfortunate after the trying times we have passed through of late.

MANIPULATION should not be attempted until warmer weather arrives. By opening hives and dispersing the heat—far more easily dispersed than engendered—a colony may easily be destroyed. More warm quilts may be added, and warm syrup supplied, but no jarring or disturbance of any kind should be allowed. It behoves all to be careful of the colonies which still survive, and to run no risks that can be avoided.

May our next 'Hints' convey more cheerful intelligence, and a better forecast than hitherto we have been able to make!

SPRING MANAGEMENT.

BY ALLEN PRINGLE.

To get the bees through the spring is about as difficult a matter here as to get them through the winter. The British bee-keeper, too, doubtless experiences some difficulty in this line. Our technical term for the trouble is 'spring dwindling.' In these two unpleasant words is summed up much of the tribulation and loss of the Canadian apiarist.

What is spring dwindling? It is the more or less rapid 'shuffling off' of the worker-bees in the spring till the number left is too small to keep the house and keep life in it. Then all is up.

What are the causes of spring dwindling? and what are the remedies? It is not so easy to answer these questions as to put them. On both there are differences of opinion, but more agreement as to remedies than causes. I cannot agree to the proposition that spring dwindling is a disease, or even an abnormal condition. It is occasionally disease, or the result of disease—winter diarrhœa: but usually it is a purely natural and normal exit of the aged and worn-out bee from the stage of life and action. Whether the exit of the old bees in the spring *before* the young ones appear in sufficient force to keep house and preserve the existence of the colony is a *normal* condition or not is another question. We know that Nature does some very foolish things, and we are constantly improving upon her methods and arrangements. The dying off before the young can take charge, whether wise or otherwise from our standpoint, is natural enough. Most experienced bee-keepers have noticed with what startling rapidity the old bees will sometimes die off from a populous colony in the spring, apparently in perfect health and under favourable weather conditions. In such cases it would appear that the bees are all probably about the same age, having been hatched about the same time in the fall, and they all go off at their 'appointed time' together. I have occasionally had colonies depart this life in that summary fashion, leaving a lot of young brood utterly unprotected. Of course this is not a frequent occurrence, for the reason that brooding usually begins in February or March, and the young bees are thus present to take the place of the old ones. I have noticed that some strains of the Italians are slow in brooding in the spring, and defer the business till they begin to dwindle, and it is too late.

What are the remedies? First amongst them is a good young queen, so that the young bees may come forward in the spring fast enough to take the place of the dying old ones. This is only one of the advantages of young, prolific queens. In a conversation with Mr. Cowan on queens in the fall of 1887 in Toronto he said, if I remember aright, that he only kept his queens two years before superseding them—in fact, less than two years, as they were reared late in the honey season, and simply kept through the balance of that season and the next. I was much surprised at this information, as, if I mistake not, Canadian and American bee-keepers were in the habit of thinking a queen's prime usefulness not gone till she had put in about three years of service on an average. Some, of course, failed at two. Possibly the Canadian queen wears longer than the English, but, taking climate into consideration, I should think the reverse ought to be true. I am, however, in favour of young queens, and am inclined to think that the extra trouble and expense of early superseding will be more than counterbalanced by the accruing advantages.

One thing is certain, however, if this is a good thing, with profit in it, the advocates of *natural* superseding are sure to be 'left,' for a majority of colonies left to themselves in this manner will usually keep their queens three years before superseding them, and sometimes four or five years. The apiarist must therefore take the matter in hand himself, or take the unprofitable consequences.

Next to a prolific young queen, in avoiding the effects of spring dwindling, is abundance of wholesome stores; and next come the proper temperature, and other conditions for early moderate spring brooding. With these three prime requisites present, the bee-keeper has little to fear from the dreadful 'spring dwindling.'

Two other important factors in successful spring management are cleansing the hive and keeping the brood-nest warm and comfortable. Whether the bees are wintered in a repository or in the open air, every colony ought to be cleansed or 'cleared out' in the spring the first suitable weather. The best way to accomplish this is to start with a clean empty hive to hold the first colony, when its hive can be thoroughly cleansed and prepared for the second, and so on. Frames, bees and all, can be lifted out, one at a time, the adhering dead bees on bottom-bar brushed off with a feather or wing, and gently placed in a clean hive, when the familiar hum of joy and satisfaction will soon ascend to your ears.

But, above all, keep the brood-nest warm during the chilly days and nights of spring. This is rendered imperative by the rapid disappearance of the old bees at this time, and the consequent diminution of the natural heat in the hive, which *must* be retained by proper packing and contraction of entrance, or 'chilled brood,' and possibly the loss of the colony, is the result.

'Stimulative' spring feeding as a supposed necessary part of spring management is not now so much practised as heretofore. While it may be advisable in some cases of inferior queens and backward brooding through deficient stores, it is not at all necessary with good queens and abundant stores.

At the time of overhauling and cleansing the hives my practice is to take away empty frames of comb and crowd the bees up into snug and smaller quarters, leaving the colony on two, three, four, or more frames, according to its strength. These may be replaced in the hive from time to time as required.

What is called 'spreading of brood' in the spring to hurry up brooding is unsafe with any but the experienced, and is not to be recommended. When adding needed frames from time to time, I prefer to leave the brood-nest intact and make the additions on each side of it. The frames thus added generally contain more or less honey, and it is often desirable to uncap, or partially uncap, that side facing the brood, when the queen will promptly do her part. When the temperature and other conditions justify and call for it, a frame of honey may be thus uncapped or abraded and placed in the centre of the brood-nest to be filled with brood. This is about all the spring stimulation necessary, or safe, where there

is a good queen and plenty of food. But the queen ought, in my opinion, to get abundance of room and have full swing up to the beginning of the heavy flow, when her area ought to be curtailed: but about this 'contraction of brood nest,' which is a disputed point, in next letter.—*Selby, Ontario.*

WHEN DO MOST BEES DIE, AND WHAT CAUSES THEIR DEATH?

(*Concluded from p.* 161.)

By Dr. Dzierzon.

Having stated the time when bees usually die and mentioned the causes of death, it only remains for me to say when and from what causes whole colonies perish in the majority of cases.

Any one with a slight knowledge of the nature of bees and very little practical experience, knows that in the greatest number of cases the loss of colonies is due to severe cold in winter; and Dr. Krasicki, speaking of the decline of bee-keeping on the Niemen, ascribes it quite correctly to especially severe winters, but, contrary to all reason and experience, he attributes the deplorable losses in Germany after the severe winter of three years ago to the great care which had been taken to keep the colonies warm in winter—which I recommend to be done—so that in the end the blame for the losses incurred would really fall upon me. To ascribe to excessive heat what evidently has been caused by excessive and continuous cold is, however, just as reasonable as to assert that a man found benumbed in the street on an extremely cold winter's night had died from sunstroke. On the warmest days in autumn and the mildest days in winter bees kept in hives made of thick logs of wood, or in very warm wooden hives, continue in excellent health. When severe cold sets in afterwards, penetrating every space, both human beings and animals are getting chilled, bees alone are supposed by Dr. Krasicki to be suffering from excess of heat and to be in a state of prespiration. Let him comprehend it who can.

Baron von Ehrenfels, who had an intimate knowledge of bees, was in the habit of placing his straw hives in rows between boards in winter and to fill up the empty spaces between with some warm material. I consider such precaution quite superfluous, but by no means injurious to the bees; for the less the heat escapes unnecessarily, the more economically and healthily will bees winter, and the longer will they be able to delay from flying out. It is of course necessary that there should be a sufficient supply of fresh air, for as a fire in a stove becomes extinguished when oxygen is excluded, all generation of heat and life itself in the bee-hive ceases when all the oxygen has been consumed. Ay, there's the rub! The want of air fit for breathing, and perhaps also of water, is the cause of bees becoming restless, which ignorant and superficially informed people attribute to excessive heat. But even should the irrepressible impulse of bees to cleanse themselves be the cause of the restlessness in a colony, which is quite imaginable, it will in any case be advantageous to keep bees sufficiently warm and active to enable them to get to the entrance and cleanse themselves there, instead of being obliged to do so half chilled in the cluster, which would almost certainly cause the immediate ruin of the colony. We know very well that as long as bees are able to get at their store of honey they can stand severe cold; and if examples are mentioned of bees having wintered well in high northern latitudes, this proves nothing against the expediency of providing as much protection against the cold as possible.

Some Italians who accompanied the Austrian Polar Expedition survived the fearful winter of those regions without any apparent injury to their health; but no sensible man can possibly doubt that they would have felt much more comfortable in their own native country where the climate is mild. For bees to be obliged to draw closely together, to tremble with cold, and to pipe in a higher key, has always to be considered an evil which a sensible and careful bee-keeper will endeavour to guard against as much as possible. Though he cannot procure for them the mild air of Italy, he should at least make their winter quarters as warm as he possibly can in order to lessen the injurious effect of the cold. There can be no objection to cut down the combs moderately in spring, and after a colony has done swarming, when the bees are able to renew them in a short space of time, which they evidently do with eagerness, and I myself frequently have recourse to this means in order to obtain guide-comb, but to destroy in autumn the winter quarters which the bees have arranged for themselves, and to expose them during a long winter to the direct influence of a fierce cold; and, finally, to advocate destroying bees by brimstone, is a barbarism of which societies for the protection of animals should inform the police in order to have the offenders punished. Want of water afflicts, and even ruins, many colonies, when obliged to consume candied honey, or honey which has become very thick. Dr. Krasicki considers want of moisture in the hive an invention and fancy of the Germans.

But more dangerous than candied honey is the honey collected from fir and pine trees. When bees are able to fly out it does not appear to affect them injuriously, but if compelled to use it exclusively at a time of extreme cold in the winter there is a great risk of its doing them harm. Such honey being of a slimy and viscous character, capable of being drawn out into the shape of a rope when the temperature is low, appears to be almost insoluble in the absence of water, and less nutritious and warming than other kinds of honey, for which reason a larger quantity of indigested matter is retained by the bees in their body, which generally causes dysentery when bees are confined to their hives for some considerable time. After a long and severe winter thousands of colonies die of dysentery, which disease is quite unknown in southern countries where the winter is mild and of short duration.

The number of colonies which perish from queenlessness every year is also very large, for if an old queen dies in autumn or winter, or a young queen is lost during her wedding trip, or if she remains unfertilised, the bees in the hive sooner or later disperse, or the colony becomes a prey to bees from other hives. According to the opinion and experience of Baron von Ehrenfels the number of colonies of wild bees which perish through having lost their queen is greater than those which die from starvation, as he infers from traces of drone-brood which he discovered. As, however, districts and seasons vary considerable, we may expect to find a great difference in this respect. During the present winter, which was preceded by a season universally described as most unfavourable to bees, it is very likely that more colonies will die from starvation than from queenlessness.

We are unfortunately not able to afford assistance to colonies which have settled in some inaccessible place, but it would be inexcusable if a bee-keeper permitted a colony to die from starvation after it had managed to exist till now; as in hives with moveable combs it is easy to insert food at the side of the winter quarters of the bees or above, either in the shape of pieces of moistened malt-sugar, or sugar-candy, or combs filled with dissolved sugar in the absence of honey; and this is practicable even when the thermometer indicates a few degrees of frost. After a favourable season when the colonies are plentifully supplied with food the bee-keeper need not be concerned about his bees; but after a bad season like the past, it is necessary to watch the hives and examine them frequently, in order that repentance may not come too late.

SCOTCH HONEY SHOWS.

Notwithstanding that 1888 proved a failure in bee-keeping, it seems likely that the present year will be interesting to the Scottish bee-keeper, at least in the south of Scotland. Sometime ago a correspondence was started in this *Journal* on the merits and demerits of Borgue honey, the origin of which may be noted as follows:—Three years since, a gentleman belonging to the Borgue district, in order to bring out more competitors in their honey classes at their annual show, offered a prize of half a guinea to be added to the first prize for the best run honey. It so happened that for three years the prize was gained by the Borgue exhibitors. Following up this success, the same gentleman made a further offer of one guinea for the best essay or answer to the query, '*To what is the peculiar excellence of Borgue honey due?*' To this latter offer several bee-keepers demurred, saying the prize should have been offered instead to solve the question, '*How has Borgue gained its famed name for honey?*' or words similar to these. The county paper opened its pages to discuss this honey question, and correspondence raged fast and furious for a time, until the editor thought fit to adopt the *cloture*, the discussion having assumed too much of the personal element. Some writers maintained that other districts produced as good honey as Borgue. Although the writing has ceased, the enthusiasm has in no wise slackened. Probably few of your readers have ever heard of Borgue or its famous honey, but there is no gainsaying the fact that in some places honey from that parish commands a very handsome price. To give some idea of their prices, I saw, when judging there in 1885, a one-pound section sold for three shillings. Borgue is a parish on the coast of Kirkcudbrightshire. Its bee-flora is chiefly clover, and a plentiful supply of wild thyme growing on the 'knowes,' or rocky parts.

Coming to the point at issue, the Castle-Douglas Horticultural Society, being the largest show held in that county, resolved to give a prize of five pounds for the best sample of run honey at their next show in August in order to settle this 'vexed honey question.' Before fixing definitely, the secretary of that Society was asked to write to me for an opinion as to how the prize should be offered, as they thought of giving the prize for a single one-pound jar of honey. To this I replied that they should make two classes, viz., (1), for the best three one-pound jars of run or extracted honey, shown in one-pound screw-top jars, all of one make and appearance; (2), for the best three one-pound sections of comb honey shown in tin section holders, similar in colour and appearance. My object in advising this was to prevent any chance of private marks or grumbling after about unfairness. From the schedule now before me, I see they offer these two prizes 'open to the world.' This will no doubt prove an interesting feature at their show. The first prize, forty shillings, is worth competing for, and as the entries are small, they will suit large and small bee-keepers. Those from a distance will have little expense in sending their exhibits, and as I understand English as well as Scotch judges are to be there, our friends across the border will have the opportunity of trying their mettle, and bringing to a satisfactory decision this important question. The secretary, Mr. W. Blackwood, King Street, Castle Douglas, will no doubt forward schedules to intending competitors.—W. McNally.

Leicestershire Bee-keepers' Association. Mountsorrel.—Lecture on Bee-keeping.—A meeting was held in St. Peter's School on Thursday, the 21st ult., in connexion with the Leicestershire Bee-keepers' Association, to hear an address by Mr. W. P. Meadows, of Syston, illustrated by micro-photographic views. The chair was taken by Mr. W. Paulson, and the school was well filled. The lecturer said the object of the Association was to spread the knowledge of bee-keeping, and also to teach those who kept bees the most humane and profitable way as to the management of that wonderful insect. He said many of those that kept bees and thought they knew how to manage them had through negligence during the latter part of the last summer (which was a very bad one indeed for bees) lost many of their stocks. Those having skeps had also lost heavily, as they were not able to tell whether they had sufficient stores or not; but they must not despair, but look after those left and feed at once. After the lecture Mr. Meadows explained the use of various appliances used in modern bee-keeping. The slides for magic lantern were very instructive, and had been lent for the occasion by the British Bee-keepers' Association. A vote of thanks to the lecturer and chairman closed the proceedings.

Honeycomb Concealed for half a Century in an old Tree.—A remarkable discovery has just been made at the Cathays Yard of the Taff Vale Railway Company. A large elm-tree, grown in Gloucestershire, was being cut up into timber, when, right in the very heart, a cavity measuring 8 feet by 7½ inches in diameter was discovered almost completely filled with the comb of the honey-bee, together with a squirrel's skull. No means of access to the hollow was discoverable, neither was decay anywhere apparent; and around the cavity itself no less than fifty 'rings,' each ring denoting a year's growth, were counted, the outer bark being, too, without a flaw. The hollow was of uniform size throughout, and presented the appearance of having been bored with an auger, and, great though its dimensions were, it was practically filled with the comb, proving that the bees must have been in possession for several years. Empty combs of the queen-bee also showed that they had swarmed. How the bees got there can only be guessed, but it is surmised that a squirrel once occupied a decayed hole in the tree, cleared away the decay, occupied the cavity as its home, and there died. Then the bees entered into possession and filled the whole with comb, when by some means the entrance, which must have been small, became stopped, the large quantity of grub and fly being taken as demonstrative that the nest was not voluntarily deserted. Then for fifty years the growth of the timber went on. The entrance being absolutely obliterated and the hole being hermetically sealed, the comb was preserved from decay for half a century, to be found at last in the way described. The find is of the greatest interest to naturalists.

BEE-KEEPERS' VOCABULARY;

Or, Glossary of Technical and Scientific Words used in Works upon Bee-keeping.

Cap. *v.*—To cover a cell with a cap; to seal over a cell.

Capeing.—Used by Wighton and others for putting on supers; supering.

Capped brood.—Larvæ in cells that are sealed over, and in which they remain until they emerge as fully developed bees; sealed brood.

Capped honey.—Sealed honey; ripe honey in cells covered with caps.

Cappings, Caps. *n. pl.*—The coverings of brood and honey-cells, the latter of which are removed before extracting the honey. The cappings of honey-cells consist of wax, whereas those of brood-cells are a mixture of wax and pollen.

Caps. *sb. pl.*—The combs of wild bees. (Scotch.)

Caramel. *n.* (*Fr. caramel.*)—Burnt sugar; sometimes produced when syrup is boiled over too fierce a fire, when it becomes injurious to bees.

Carbolic acid.—A powerful antiseptic, antipntrefactive, and disinfeetant, in colourless crystals, obtained commercially from coal-tar. Used for disinfeeting hives, and in solutions as remedies for foul brood; also 'Calvert's No. 5 is used in solution for the purpose of quieting bees and the prevention of robbing. Syn. Phenic acid; phenol; hydrate of phenyl; phenyl alcohol.

Carbon. *n.* (*Fr. carbone*, made by Lavoisier: fr. *L. carbo*, coal.)—A non-metallic element, one of the constituents of honey. Pure charcoal.

Carbonic acid.—Name given to a deleterious gas given out in the breathing of animals, and which retained in the hive would be injurious to bees. An acid formed of carbon and oxygen.

Card. *n.* (An altered representative of *Fr. carte*, fr. *L. charta*, paper, papyrus leaf.)—A sheet of honey or brood-comb; a frame filled with honey-comb.

Cardo. *plur. cardines.* (*L. cardo*, a hinge.)—The basal joint of the maxilla, which works on a hinge-like fulerum, and performs the function of a lever to the labium.

Carina. *n.* (*L. carina*, a keel.)—The central raised part of the ventral plates lying between the wax-yielding surfaces; the septum.

Carlin cutter.—A steel or other metal disk inserted in a handle and used for cutting comb-foundation.

Carniolan bees.—A race of bees found in Carniola (Krain), a small district in South-western Austria. They are black bees, with bands of white hairs surrounding the abdomen, are remarkable for gentle disposition, prolific, hardy, good honey gatherers, build extremely white comb, and are great swarmers.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR *of the "British Bee Journal," c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of March, 1889, amounted to 1145*l.*—[From a return furnished by the Statistical Department to Mr. Bellairs.]

TRANSFERRING EXPERIENCES, &c.

[2051.] As Mr. Hooker has given the way to manage the transferring bees from an awkward position (2044), perhaps it would not be amiss to give an account of an experienee of mine; and I hope that others may follow suit and give us some ideas of the way they managed. I was staying at a friend's house in South Wales last June, and he showed me a stock that bad been in the eaves of a two-storeyed stable roof for years. Several persons had tried to get them, but failed. The bees were lodged in the thickness of the north wall, the tops of the combs coming up to and sticking to the slates (what about warm quilts and coverings after this?). The combs were *at right angles* to the entrance-holes, of which there were three, and they faeed north. The combs had evidently extended for at least nine or ten feet, but owing to rats and miee were gnawed away to about three feet. They varied in depth from 8 to 18 inches in depth, and were about 2 feet long. I got hold of a long ladder and plaeed it against the wall, and armed myself with veil and gloves, smoker, long earving-knife, skep knife, and a short iron bar to use as a crowbar. On the ground were plaeed ready a dish, two skeps, and a prepared bar-frame hive, and on a table elose at hand was spread a piece of flannel, with tapes and seissors. The groom, a Welshman, who couldn't talk English, put on a veil and gloves in order to assist me.

After applying the muzzle of the smoker to the entrances, and giving a good lot of smoke, I proceeded to wreneh off the slates and uneovered the combs. I need scarcely say that had I not been protected as I was I believe I should have been stung to death, as the stock was an immense one, and they were decidedly vicious. As fast as I could I eut out one or two eombs from the brood-nest and carried them down, and tied them into the frame, and by driving and brushing up young bees I was able to tip in with the frames in the hive about a skep full. Of the rest of the combs of course I kept only the worker and straightest pieces, and tied them all in the frames. I was able in this way to get about eight frames filled with worker comb and brood, and honey in them. I then put on the quilts and a feeder. Meanwhile the queen escaped through a hole in the wall, and a eluster with her hung in the apex of the roof over a ceiling. With only room to erawl in on hands and knees, I was able, after an attempt or two, by the aid of a spoon and spooning a few bees towards it, and a feather with carbolie, to drive the clnster into a skep, which they again pretty well filled. However, evidently owing to difficulties under which I was placed, and insufficieney of light (only that of a dim stable lantern), I did for the queen. However, I am glad to say they were able to sueeessfully raise a queen, and the stock up to the present has been the strongest my friend (a beginner) has. In order to keep the bees from frequenting their old haunts I anointed it well with carbolie and water, and the masons then made the place good.

Although I did not adopt the plan I am about to advoeate, I think it would not be out of place to give it here. In operations of the like kind, performed previously and since, I have had ready prepared bar-frames, with a small guide of wax down the centres of the side pieees of the frames. In addition to this I have had strips of comb foundation fixed in them from the ineh starter to three inches in depth. Instead of (as in the way advoeated in guide-books) tying the combs so as to reach the top bar, I eut the bottom edges of the comb straight, so that it shall rest well on the bottom bar of the frame, and eut the eomb foundation (if need be) so as to just meet the top edge of the comb, and then I tie in with three tapes. I often renew eombs this way, as, generally speaking, the lowest half of the comb (which I eut away and melt down) is most bred in, and consequently sooner of less use for breeding in than the top half. I have tried the above plan against the old way, and have repeatedly found that the bees fix the combs with the wax-guides as quiek again as the other; and in less than twenty-four hours, even if the combs are as full and as heavy as can be, the tapes may be removed without risk of the combs breaking away.

I am glad to see that a super for extracting for use with a skep is being brought out (2042). This is a step in the right direetion, in order to induce eottagers to take to bar-frames. But why not make them to take 'Standard' bar-frames, as in most use, and also that, if desired to get rid of straw skeps, the ehange would not be great? It is obvious that transferring with a super of the sort I suggest need not be performed, as, with the

use of worker-comb foundation in the frames and the removal of the zinc excluder, the queen would speedily transfer herself and retinue to the upper storey, and the skep could be removed emptied of brood and honey, and the empty combs in the skep could be treated as wished.

A word of advice to those who use Abbott's bars, and are inclined to try the 1¼-inch spring and summer distance between the combs in the brood-nest so powerfully advocated by the worthy Editor. I have heard of some cutting off the broad shoulders at the ends of the bars, shortening the bars, and fixing boards (at great trouble to themselves) to the front and rear walls, to prevent the escape of bees. Why do this at all? All that is necessary is to get some plain bars, and cut a ¼-inch notch at the alternate ends of the bars, using the piece cut to nail on the other side of the bars, so as to correspond with the Abbotts in use. In the 14½-inches square hive for ten bars at 1¼ inch distance apart, four plain bars cut in this way will be necessary, and seven ordinary Abbotts, making eleven bars in the old space for ten bars. In increasing the distance as advocated for winter little stops of cork or wood may be used. The way the bars will run in the new way in 14½ inches square space will be two Abbotts, then a plain end, then an Abbott's and plain end, &c., finishing up with two Abbotts, thus making seven bars in the brood-nest, at 1¼ inch distance. However, if the above plan is not adopted, do not spoil your bars, as, with wood broad shoulders, they keep in the heat better than any other way.—JERSEY BEE-KEEPER.

NOTES ON BEE-KEEPING.

[2052.] *Balance-sheet.*—I never troubled to keep a strict account of my bee-keeping business until last year, and certainly my first balance-sheet is not a very encouraging one. Showing, as it does, total expenditure 12*l.* 10*s.*, gross receipts, 2*l.* 10*s.*; balance to the bad, 10*l.*; plus one year's labour. But perhaps, after all, there is some consolation in the fact that in one account, if not the very worst season on record, an apiary of about thirty stocks can be kept in first-rate condition at no greater loss than 10*l.* for the whole of the year, which amount includes cost of several articles still on hand, such as foundation, sections, &c.

Choice of a Hive.—It is some seven or eight years since the 'Combination' became my favourite hive, that is, a hive capable of holding not less than fourteen British standard frames parallel to the entrance, with moveable floor-board, double side walls, outer walls eleven inches deep, and deep roof sloping from front to back. Most of my hives are of that description. The outer walls and roofs are made of good inch pine; they are painted every spring, and look like lasting a lifetime—a very long one, too. I have tried many other kinds of hives, including some of recent date; but there is none I like so well as my old favourite, whether the hive of *my* choice is really better than any other, or whether it is inherent prejudice, a whimsical fad, or what not, that causes me to stick to it with such tenacity, I must leave to others to determine.

Wintering.—Last autumn I packed up twenty-nine stocks, all hive entrances were set wide open: American cloth was used next to frame, on the top of which was placed either a chaff-cushion, or at least two inches thick of carpet and other warm material. Each colony was, as I thought, provided with winter passages either through the combs or over the frames; but in some unaccountable way one stock was missed, as I have since discovered to my cost—the poor bees died starved to death with three frames of sealed stores close by their side; but which they could not get at. Fortunately, at the time of making this discovery, the queen with about fifty to one hundred workers were alive, the comb on which they were clustered was taken to a queenless stock, and without any preliminaries of any description was inserted right in the centre of the bees that were without a queen, and the hive covered down in the quickest possible manner and has not been open since (March 9). The queen must have met with a welcome reception, for the bees are busy taking in pollen, and show unmistakably progressive signs.

The unfavourable summer of 1888 has been followed with a most trying winter. I think I may safely say that the quantity of stores consumed from October 1888 to March 1889 was nearly double that of the same period of previous years, whether the extra consumption was owing to the comparatively mild winter, or whether bees required a larger quantity of syrup than honey to winter on, I don't know; perhaps both had something to do with it. We had very severe weather here in the early part of March, as much as twenty-five degrees of frost, which delayed my spring examination a full fortnight longer than I intended, the consequence being one stock died short of stores. I have thus lost two stocks out of twenty-nine; the twenty-seven left are being attended to with the greatest possible care, all floor-boards have been cleaned, entrances narrowed, the bees well supplied with stores and warmly packed with chaff-cushions, and I have ample cause to believe that breeding is going on in each hive; but I can only judge from external appearances. My apiary during the spring months is worked as much on the non-moveable comb principle as possible; that is, I never move a comb nor even raise the quilt unless absolutely necessary.

The accounts coming to hand from neighbouring bee-keepers, that is, those residing within a radius of eight or ten miles, are of a most doleful nature, viz., 'Have lost all my ten stocks,' 'Lost three out of six,' 'Nineteen out of twenty,' 'Went into winter quarters with thirty-one stocks, have only four left,' 'Only fifteen left out of forty,' 'Eleven out of twelve,' 'One out of four,' and so on; such are the depressing tales now being told. It is only fair to say that these losses are not confined to skeppists, some who have nearly all their bees in frame-hives, and have been amongst the largest honey-producers, are now amongst the heaviest losers: surely, if ever there was a time when it behoved bee-keepers to look well to their stocks it is now.

American Cloth.—When making a superficial examination of my stocks last January, I was somewhat alarmed to find that on the under side of several of my quilts—American cloth—were hanging large drops of water, which I need not add were hastily removed, and a resolution past never again to use a non-porous quilt during winter months. A quilt of the latter description may be beneficial during the spring, but the interior of a bee-hive is not in my opinion, especially during the dead of the winter, the proper place for drops of water as large as peas.

I have no wish to dogmatise, nor do I intend this even as a criticism of what has been written by others in favour of non-porous coverings for winter. I simply state facts as I have found them; but it by no means follows that because American cloth has not in my case given satisfaction, it will when adopted prove universally a failure, locality may, and no doubt does, have something to do with it.—A. SHARP, *The Apiary, Huntingdon.*

SPRING NOTES.

[2053.] *Her First Outing.*—On the first Sunday in January this year, as I was taking a walk in the afternoon, I heard a light humming sound above my head, and looking up, saw a fine large queen-wasp on the wing. She appeared full and heavy, and seemed to fly only with difficulty. She was visiting the yew. The weather was calm, and the sun warm, considering the

time of the year. Did our winged denizen know that she was already greeting with timid flight the early dawn of a bright new year?

An Early Visitor.—I have in my lean-to glass house, facing north, a cineraria in flower, the only plant there that can be visited for pollen. One bee has found her way in by a small passage-way under the glass roof, and she visits this plant three or four times each morning during favourable weather. Wallflowers, and several other plants, are in blossom in the surrounding gardens, where this bee passes the remainder of each day's toil; still, this solitary flower is not forgotten as the first morning task. Bees are partial to sunshine for gathering pollen in early spring, and our visiting friend has noted her time with precision. This cineraria only gets the early morning sun for a short time each day between eight and nine o'clock. Our tiny head, with family cares, appears with the first rays of sunshine on the flower, and she completes her task before the last depart. What an observant husbander of time! what a saver of trifles in time of need! And as she leaves these blossoms practically devoid of pollen when she last departs, she neither forgets the passage, nor neglects the moment, to find them again next morning clothed with their fresh robe of golden hue. We look for her as for the fresh morning blossoms, our early visiter!

A Morning Airing.—One day last week, at mid-day, after having gone round the apiary to notice the amount of pollen that was coming into each hive, I stood for a moment near the garden gate admiring a fine hive of Carniolans, when, on trying to compare the working of the next hive along the walk, which had Italian hybrids, I observed their queen being caressed by a few workers on the alighting-board near the entrance. I stepped quite close to make sure; she had the long, worm-like abdomen peculiar to royal descendants from an Italian mother. I stepped back, so as not to stand in her way; she took wing several times, only flying in small circles of a few yards about and above her hive. As she alighted each time on the corner of her hive, or of that adjoining, she brushed herself, and stretched her limbs, as if she had better scope to do this after an airing than on the hive combs. The weather was calm, with sunshine now and then between small clouds. No bees were fanning at the entrance of her hive, where she finally returned after an outing of about five minutes from the first I saw of her. They, however, were bringing in pollen, though sparingly, the greater number returning with nectar from the female catkin flower of the willow, now in bloom. After she had gone inside again, there was the gentle fanning audible at the entrance, expressing gladness at the return of a particularly beloved member of the community. She is a queen of last year, and appeared smaller in body than queens of her strain are during the active egg-laying season. I listened against the side of the hive in the evening; there was good activity inside, and there seemed to be good normal conditions.—Peter Bois.

EASE IN MANIPULATION.

[2054.] I have been greatly interested in the paper on 'On the Choice of a Hive;' but in order to carry out the second requirement, 'ease in manipulation,' &c., I contend that the fittings are all-important, bars, floor-boards, &c., are necessarily of importance and not 'trifling matters.' If one uses comb foundation largely, and we are strongly urged to do so, why have the frames in the brood-nest 1¼ inch apart, for spring and other frames 2 inches and 1⅝ inches for wintering? In the typical 'standard' the 'Woodbury,' in order to assure a fixed distance apart for winter or summer, notches were cut for the bar ends to rest in, or staples driven into the frames. Without something of this sort manipulation must be a work of time. Again, in my experience the fact of giving side combs a greater distance than those in the brood-nest reduces the modern ideal, owing to comb-thickening by the bees, to the level of the old Stewarton and uninterchangeability of combs. For 'ease in manipulation' give me broad-shouldered bar-frames (wood resting on wood by preference). The advantage I find with 'Abbott's' is that combs can be placed flat against the wire of the extractor, thus minimising comb breakage, and next to them come 'Langstroth' bars. Wood keeps in heat, but metal ends of any sort must mean loss of heat and condensation. Bars the full length (17 inches) can be loosened before manipulation begins without disturbing the bees; whereas shortened bars on runners, owing to the bees crowding to where the fingers are placed, are not exactly my ideas of 'ease in manipulation.'

I have found that loose floor-boards prevent easy manipulation, as they are liable to slip at an inopportune time, and when replaced, even with the greatest care, some bees are liable to be crushed, to say nothing of any damage done to frames or combs. If the bar-frames hang clear of the floor-boards by half an inch full, and the bees are given a wide entrance and proper ventilation above, there is no necessity to raise the hive-sides in summer. I am thankful to say my floor-boards are now all fixtures, and it does not prevent me from thoroughly cleansing my hives when putting them by or prior to using them. Elasticity, of course, can only be attained by the use of properly fitting, unwarpable division-boards, not the style advocated by some to hang clear of the floor-board by a quarter of an inch, but fitting well all round. I have a pair for each hive. As regards the capacity of the hive, 14½ inches square was the 'Woodbury' measure (for 10 bars), and is good enough for me; it takes a good queen well employed to keep the vacant cells occupied. My hives are similar in appearance to the 'Cowan,' the difference being that in mine the body box, outer case, floor-board, porch, and alighting board, are fixtures, and also there is only 1 inch air space allowed all round, which can be packed with folded newspapers if desired. My alighting board is narrower, but with any sort of board bees are likely to drop on the ground, and in cold weather get chilled. I do not lose many bees this way. Instead of legs I use the Simplex stand, which shelters the bees in windy weather. The upper storey for extracting takes 10 bar-frames, and is the same size as the hive below, and a loose outer case goes round this. The cover, instead of being in two parts, is 9 inches deeper in front and 6 inches deep in rear, and is thus deep enough for a crate of sections or a feeder. It is ventilated at each side by (3) inch holes covered with perforated zinc. The roof projects three inches all round, and is made of three pieces of wood, two bevelled cleats breaking the joints. The whole is well painted with white or stone colour, (as the most suitable colour for hot weather, and in fact as used by our troops in India because it is cool). If well painted it is perfectly watertight, and need only be painted once a-year. A hook is fastened to the lower edge of each of the sides of the cover, and a long piece of small figure-of-8 chain is similarly fastened to the bottom edge of the hive to keep the parts together in windy weather. The outer cases are of half an inch wood, and the hive of 1 inch. The whole cost made by a local carpenter under my direction was about 16s. per hive.—A Jersey Bee-keeper.

IN THE HUT.

'The labour we delight in physics pain.'

[2055.] The hut, well cleansed out, the cushions dried, and all well purified with sweet spring air, again becomes a trysting-place for the bee-keepers of the neighbourhood; but, as we compare notes this year, there is

a lot of headshaking over the 'massacre of the innocents' by the winter just past. One huttite went into winter quarters with thirteen frame-hives, well provisioned, cared for in every way he could think of. He has come through the surf with only five; another says, 'Three have gone out of five,' and 'X-Tractor' joins the mournful throng, having lost one, and that his best stock. All were alive and kicking in January, with plenty of stores (good heather honey), but this was in the rear of the hive, and an adjustment of frames had been impossible. Then came the 10th of February, with 16° of frost, and the hive I was using as a test without winter passages was lost; six frames of bees,

'Each in his narrow cell,'

and clustered over by its mates, had been caught before they could shift for themselves to where there was plenty.

N.B.—In future, sticks from front to rear (all frames hung parallel to entrance) will be the rule without exception. It is over the *tops* of frames bees like to have free movements, as is amply testified by a square glass hive in the hut, from end to end of which there is free circulation for bees over the tops of frames.

I have been asked several times for the names and addresses where the sheets of boiler felt I named some time ago may be obtained. I therefore think it may be of service to say that any oil and tallow merchant can supply them. I got mine of J. Firth, Hunslet, New Road, Leeds, at 11*d.* each, and cut each sheet in two.

Is it too late to pay a small tribute to the memory of the late Wm. Raitt? I only once had the pleasure of meeting him, and that was at one of the 'Colonial' meetings, where I was much impressed by the slow, deliberate utterances, pregnant with shrewd common sense of the erect, burly Scotsman. Scotch bee-keepers can ill spare such—

'A burning and a shining light.'

I think a conference of bee-keepers one of the very best means of getting us to know each other, and it will be well if some extra step in this direction be taken at the forthcoming 'Royal.' My experience has been that I find men so very different really from what I picture them from the correspondence we have had together. Then, again, cannot the Committee of the B.B.K.A. (who will find a goodly concourse of bee-men at Windsor) arrange a sequence of tent lectures by well-known and eminent men? Young bee-keepers will then be able to see and hear people they have only read of: then, in after years, as in my case with poor Raitt, the scene can be vividly recalled with the exquisite pleasures of memory. Unless I am mistaken, many of us will regret some day the lost opportunities we have had of seeing and knowing 'the pioneers of the craft.' I think *pilot* sounds better than *pioneer* when speaking of craft. This calls to my mind that Mr. Woodley recently designated Mr. C. N. Abbott a 'pioneer;' well, surely it is correct to bestow on an Abbott a Prior claim to such a title.

By the way, your new departure, in giving us a series of leaders on 'Leaders in Bee-keeping,' is a happy idea. The likeness to Mr. C. N. Abbott is there; it is good, but you cannot reproduce the light in the eye, the eagle-like glance of the original.

From photography to pea-meal:

'What a falling off was there!'

This year I have tried a new dodge ('Old as Adam,' says one), by shaking one side of a comb full of pea-meal, and leaning it, in a place sheltered from rain, alongside the usual basket of shavings and meal, and that erratic strain of bees peculiar to one's own bee-garden persists in excavating the cell to going in for a full meal out of the basket, a little '*mel*' on the aforesaid shavings is a fine attractor.

What next will 'that bee-man' do? I fancy I can hear some neighbour say, as he looks over his looking-glass on a sunny Sunday morn, and sees 'X-Tractor' reverently stooping over beds of crocuses, feeding the baby opening flowers with a teaspoon charged with Symington's pea-flour. This is Sabbath-breaking in these puritanical parts, and is worse than 'whussling ayont the Tweed.' The observer never thinks one may also be occupied in admiring the varying lengths of the stigmas of the various coloured flowers, the sequential opening to the sunlight of yellow, purple, and white, the striped crocuses so well closed that it takes a bee all its time to force a way in, although the protruding saffron-yielding style offers a tempting bait against such violence. You may watch flowers flag and fade under the burning sun of a summer noon in my country, but you mustn't give them a drink; you may, however, have some lemonade yourself on the lawn. My scalp-lock tells me I am getting on the war-path, so the calumet of cut navy plug shall try to soothe—

X-TRACTOR.

Echoes from the Hives.

Daylesford, April 5th.—The weather here is rather better than it has been for the past fortnight, and the little beauties have been making the best of it, too. They have been very busy carrying home pollen from the palms, I think, as they are just coming out well. The mortality has been very great among the bees about here. Only this morning I visited a friend who last autumn had thirty-five stocks, some in frame-hives, some in skeps. I took him some candy to feed them with, and on going to give it them found them all dead but one. My seven stocks have all wintered so far first-rate. One gentleman has lost one through a mouse getting in amongst the bees. I am trying to find out how many have survived, and how many have been lost, but I fear considerably more than half have died in this immediate neighbourhood.—GEO. LAMB.

School House, St. Margaret's, Stratton, Swindon, April 6th.—Bees are now flying freely from the stocks that have survived, and are bringing in large supplies of pollen. Some of us would like to exchange some appliances for early swarms. My bees are a mile from home, so they do not get so much attention as formerly; but

'I shall stick to the little creatures,
Keep them warm and dry,
And they will well repay me
In the "sweet by-and-bye."'

I have some promising pupils who are learning the 'more excellent way,' including a Vicar and an M.D. —COLTRIP J. G. GILBERT.

[The incident mentioned by you was inserted in the *Journal* in October of last year.—ED.]

Honey Cott, Weston, Leamington, 8th April.—Here in this locality spring-like weather approaches very tardily, so much so that there is no blossom of plums, &c., out yet; although, if we can but get some warmer weather to last, there would soon be a lot of forage. I have been feeding pea and wheat flour for a fortnight or more, which the bees have taken with great avidity. To show what ready means of communication the bees have, I have noticed several times, when they have cleared it (the pea-flour) nearly all up, and there have only been a few bees at it, I had no sooner given them a fresh supply than in less than five minutes they would be there again by hundreds, and working away, looking like millers. During the last week I have made a slight examination of all stocks, and find they have wintered very well on the whole, only having one stock queenless, besides the stock that had the drone-laying queen, which I united in January. There are just two or three stocks that are rather weak. I also got the carbolic cloth and smoker and went over a good many stocks, taking the

paper, &c., off the frames where I had given candy cake, and re-arranged quilts, and began to feed with syrup, which I have made by simply pouring boiling water on to the best granulated sugar that I can get, and well stirring it till all is melted. I am so well satisfied with the way my bees have wintered on syrup made in this way that I shall never bother to have any boiled any more. A very good plan to keep down weeds, &c., round the hives: I have given a good dressing of sawdust, which saves a lot of trouble. I am very pleased to see such a good portrait of friend Abbott. May his shadow never grow less is the wish of one of his old and admiring pupils.—JOHN WALTON.

NOTICES TO CORRESPONDENTS & INQUIRERS.

J. EVERETT.—*Second-hand Hives.*—We do not advise you to purchase these unless you are certain they come from a district where there is no foul brood. If you do take to them, in any case they should be thoroughly disinfected by boiling, washing with carbolic solution, or fumigation with sulphur.

WM. CUMMING.—Full sheets of foundation are preferred to starters for hiving swarms on. If you do not wish to keep the combs in reserve for extracting purposes, these can also be used for swarms by placing two or more drawn-out combs along with the full sheets of foundation. Your former query will be better answered by a short article which will appear shortly.

J. H. P.—*Foul Brood.*—When breeding commences remove all stores, crowd the bees closely, and feed with syrup containing the Cheshire cure. In the year 1887, the Lancashire and Cheshire B.K.A. sent forth to its members some very sensible directions for the cure of foul brood. These will be found in page 242 of our volume for 1887; and as your locality is not far from that part, we should advise you to acquire the directions and to follow them closely.

JAMES SIMKINS.—*Dead Bees.*—Such a condition of things frequently takes place. Upon the loss of the queen the colony dwindles, and is then attacked by other colonies, and succumbs. Frequently the few surviving bees join the robbers, and assist in removing their own stores. Beet or other kinds of unsuitable sugar, when fed to bees, will cause their ruin. Where colonies have honey as part of their winter's store they will survive, though the remaining portion is unsuitable, but where fed up upon common or beet sugar alone they will die.

THOS. MORTON.—*Spring Feeding.*—You can commence now with autumn syrup, and substitute same for spring syrup in about three weeks' time. Autumn syrup: 1 lb. of granulated sugar to half a pint of water. Place in saucepan on fire and remove from same directly all the sugar is dissolved. For spring syrup use three quarters of a pint of water to every pound of sugar.

F. S.—*Paragon Hive.*—We have had no experience with the hive named. It has not yet come into use, so that no opinion as to its practical working can be given.

R. SHEARD.—*Frames.*—We prefer a plain wood frame of the dimensions given as the Association Standard, fitted with wires (No. 32 tinned), which are to be embedded with an embedder into the sheet of foundation. The frame to be fitted, for novices, with metal ends.

E. M. R.—1. *Casks for Honey.*—A properly constructed hard wood cask, waxed with any vegetable or mineral wax, will never leak. If made of soft wood leakage will assuredly take place. Why not use the tin packages? These are much the cheapest, and can be fitted with cases of wood to prevent damage. 2. *Size of Langstroth Frame.*—$17\frac{5}{8} \times 9\frac{1}{8}$.

HUGH RITCHIE.—*Bees Dwindling.*—They are undoubted cases of what for many years had been called spring dwindling, and mostly arises from their gathering in late autumn improper food, such as aphidean honey. Cold, late springs will often cause weak colonies to be so affected.

M. H.—1. *Observatory Hives.*—Do not put the bees in before settled weather in June. If you remove the bees to front of house all the old bees will return to their former location. You had better run an extra number of bees into the observatory hive to make up for this loss, as all the young bees will stay. 2. *Wood Sides to Observatory Hive.*—If it is an ordinary leaf hive the bees will not winter in it, even with wood sides. 3. *Doubling.*—Do not use excluder zinc between the doubling boxes. If your hives are very strong and honey is plentiful you will have no difficulty in getting the bees to ascend. Extract towards the end of the season; there will then be no brood in the combs, even if the queen has made use of them earlier in the season.

GEO. LAMB.—The piece of comb forwarded is not affected with foul brood. The pollen-clogged cells have been mildewed. The mildew can easily be brushed off. It will be advisable to give fresh syrup to your swarms.

H. INDIN.—*Sealed Stores.*—1. Your query is very indefinite. Whether the six frames may be covered with bees or not, your only plan is to feed constantly and carefully, so that there will always be two or three pounds weight of store in advance of daily requirements. Again, the honey season may be a month earlier or later than usual, so that a definite quantity could not be estimated. When the honey flow occurs there should be so little syrup stored that extracting would be useless. 2. *Simmins' Method.*—This mode will give you least trouble, and interfere less with the progress of the colony. Swarming is more likely to be prevented by the additional combs. Place the new hive over the one you now have as soon as the same is pretty well crowded. The original stock-combs will not be used as you suggest, unless you neglect to super.

JOHN PERRY.—*Feeder.*—We are pleased to have seen your feeder. The strainer, which can be put in the cork-hole for cleansing purposes, will be found a useful addition. The feeder will be easy of regulation, simple, useful, and serviceable, if the cost of its manufacture can be kept within due bounds.

SHOWS TO COME.

BEES, HIVES, HONEY, ETC.

June 24–29.—Royal Agricultural Show at Windsor. Entries close May 1st. Secretary B.B.K.A., J. Huckle, Kings Langley, Herts.

NOTICE.

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Editorial, Notices, &c.

EMINENT BEE-KEEPERS.

No. 2.—THE REV. JOHN DZIERZON.

We have this week the pleasure of presenting to our readers the portrait of Dr. Dzierzon, the eminent German bee-keeper, and the author of *Rational Bee-keeping*, which, in the year 1880, was introduced to the notice of British bee-keepers by a translation by H. Dieck and S. Studderd, revised by Mr. C. N. Abbott. Dr. Dzierzon has been styled by Baron von Berlepsch 'the father of the new era of bee-keeping,' and he has earned throughout Europe the proud title of 'the father of progressive apiculture' (*le père du progressif apiculture*). Besides the portrait here presented, we have before us one to which is given the most prominent place in the photographs of German bee-keepers recently published. In this latter portrait, Dr. Dzierzon is represented wearing various decorations and medals which have been bestowed on him by governments, and universities, and agricultural societies. A bee-keeper who has been so highly honoured is truly deserving of a foremost place amongst our 'Eminent Bee-keepers.'

DR. DZIERZON.

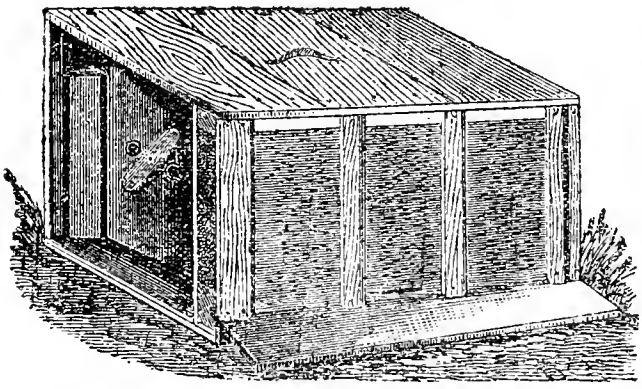
The life of Dr. Dzierzon is a very simple and uneventful one, and is similar to that of hundreds of clergymen in this country. He was born on the 16th of January, 1811, at Lowkowitz, near Kreuzburg, Upper Silesia. He attended the school of Lowkowitz until he was ten years old, when he was sent to the town school of Pitschen, and a year afterwards was transferred to Breslau, where he finished his course at the University. He attained such excellence in his studies that he was first in every class of his College, and left the University in the autumn of 1830 having obtained a certificate as having passed No. I.

From early childhood young Dzierzon had a great partiality for bees. His father kept a few colonies in hives made of logs of wood, mostly placed in an upright position; these were at that time the kind in general use in Silesia. He always found the greatest pleasure in the contemplation of the indefatigable industry of bees, and the wonderful way in which they built their comb. While he was studying at the University he was in the habit of taking his walks where he knew an apiary to be, or a colony of bees in a hollow tree, so that he might enjoy the sight of these industrious insects and listen to their joyful humming.

His fondness for bees even determined his choice of a profession. Life in an office or at a desk seemed to him intolerable. As he experienced the greatest possible pleasure in the study of nature, and more especially in the wonderful economy of bees, he chose a calling in which it would be possible for him to follow the bent of his inclination.

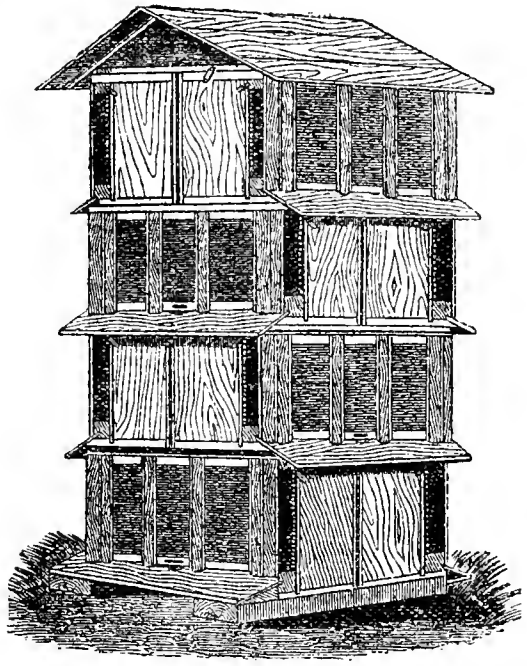
Dzierzon was ordained on the 16th of March, 1834, and having acted as Chaplain in the Schalkowitz District of Oppeln till July 1835, he received the offer of an appointment at Karlsmarkt. This was a very small living, but as in succeeding years it suited him entirely, it never occurred to him to seek a better or more richly endowed living. The garden of his parsonage was a tolerably large one, and his first care was to arrange a place for bees. He soon stocked it with some colonies from his father's apiary in the old-fashioned hives mentioned above. His bees did very well in them. He, however, was not content with the hives in the primitive state in which he found them, but proceeded to make various changes in them, so that he might have a more perfect control over his bees. These changes gradually

led up to the invention of moveable combs (almost simultaneously with that of Dr. Langstroth in America), which enabled him to take out a full brood-comb, or honey-comb, and insert it in another hive. But as it was sometimes difficult to detach the comb from the side of the hive, he constructed others opened at the sides, which enabled him to loosen the combs and take them out with ease. At the commencement Dzierzon used single hives called 'Lagers' and



The Twinstock.

'Standers,' but afterwards constructed hives to hold two, three, six, or eight colonies in order to economise material and space. Owing to the convenience he derived from the moveability of the combs, the number of his colonies increased in a few years to four hundred, and he



A pile of Twinstocks.

was constantly obliged to be making new hives and planting additional apiaries in the neighbouring villages. His apiary at Karlsmarkt was chiefly used for observations and experiments; and after his introduction of the Italian race,* for breeding these bees and keeping them pure. This apiary was always open to any one interested in bees; it was visited by numerous people desirous of increasing their knowledge in bee-keeping, especially by schoolmasters, many of whom came by desire and at the expense of the Government.† He was at all times ready to communicate the results of his experience to his visitors; he also made known his views in the *Frauendorf Journal*, which enjoyed a large circulation at that time. These articles were afterwards collected and published in the form of a pamphlet entitled *Pfarrer Dzierzon's Improved Method of Bee-keeping*. This pamphlet was very incomplete, and induced Dr. Dzierzon to publish his views in a more complete form, which work, after passing through several editions, was published under the title of *Rational Bee-keeping*, the latest and most complete edition of which appeared in the year 1878. From 1854 to 1856 he published *The Bee Master of Silesia*; but the greater part of his observations and experiences appeared in the *Bienenzeitung*. In this publication appeared his views on *Parthenogenesis*,‡ which, though at first they met with much opposition, are at present agreed to by all bee-keepers. Baron Von Berlepsch at first vigorously opposed this theory; but was at length convinced of his mistake, acknowledged his error, and openly declared he would come into Dzierzon's camp 'with bag and baggage.' Dzierzon's theory, according to which the drones originate from unfertilised eggs, and all impregnated eggs produce females, gradually found adherents and recognition among men of science; and its correctness was proved by the microscopical and physiological researches of Professors Dr. Von Siebold and Leuckart.

From all parts of the Continent, and from many of the reigning sovereigns, Dzierzon has received distinctions and honours. One of the first which he received was that signed by Archduke John in his capacity of President of the Agricultural Society of Graz. The honorary title of 'Doctor' was conferred on him by the University of Munich. At the Bee-keepers' Congress at Darmstadt, the then reigning Grandduke of Hesse invested him with the Order of Ludwig, and from the Emperor of Austria he received the Order of Francis Joseph. The Emperor of Russia confered upon him the order of St. Anne, and the King of Sweden the Order of Wasa.

To Dr. Dzierzon we are indebted for the various artificial substitutes for pollen. With his eye ever open to discover any means that would be of assistance to his bees, he observed them bringing from a neighbouring mill rye-meal, before they were able to procure a natural supply for the food of the larvæ; and ever since bee-keepers have been in the habit of supplying the bees with artificial pollen in the spring.

Dr. Dzierzon, like many other bee-keepers, has had

* Captain Baldenstein, when stationed in Italy, was the first to notice the exceeding industry of the Italian bee. When he retired from the army he settled in Switzerland, and procured a colony from Italy in September, 1843. His observations impelled Dzierzon to make an effort to procure the Italian bee; and by the aid of the Austrian Agricultural Society he succeeded in obtaining, late in February, 1853, a colony from Mira, near Venice. Dzierzon bestowed much pains in maintaining the purity of his Italian bees, and thirty years after the first introduction he exhibited at Neustadt, near Vienna, a perfectly pure descendant from his original stock.

† Several of the Governments of Europe take great interest in spreading among their people a knowledge of Dzierzon's system of bee-keeping. Prussia furnishes monthly a number of persons from different parts of the kingdom with the means of acquiring a knowledge of this system; while the Bavarian Government has prescribed instruction in Dzierzon's theory and practice of bee-culture as a part of the regular course of studies in its teachers' seminaries.

‡ *Parthenogenesis*, meaning 'generation of a virgin,' is the ability of a female to produce offspring without having been fertilised; bees have, with many other insects this faculty. On page 104 of the present volume the theory of parthenogenesis was treated at length in a lecture by Professor Von Siebold.

sad experience of the virulence of foul brood. In 1848 this plague broke out in his apiary, destroying several hundred stocks and leaving only ten untouched.

In consequence of various ecclesiastical troubles which occurred at Karlsmarkt, he decided to leave the place where he had lived forty-nine years. He removed to Lowkowitz, the place of his birth, where he is now living with his nephew, the youngest son of his brother. His time is wholly taken up with looking after his bees. He here lives a happy, peaceful, and a contented life. 'Bee-keeping,' he says, 'will transform even a desert into a Paradise for him who has a receptive mind for the works of the Almighty and the wonders of Nature.'

Review.

LANGSTROTH ON THE HIVE AND HONEY-BEE, revised, enlarged, and completed by Chas. Dadant & Son. Published by the authors, at Hamilton, Illinois, U.S.A.

It is more than thirty-six years ago that the Rev. L. L. Langstroth wrote his book, *A Practical Treatise on the Hive and Honey-bee*, which in 1852, when the first edition made its appearance, was destined to revolutionize bee-keeping and make it no longer a matter of chance, but as certain as any other rural industry. It was at that time, and still is, the best written treatise on the subject, and we remember with what interest we read and studied it in our earlier bee-keeping days, and how we admired his clear and facile style of writing. In 1859 a second revision was issued, and since that date, although several editions have been printed, no revision has been made. During these thirty years so fast has bee-keeping advanced, and so many new discoveries have been made, that a new revision was absolutely necessary, and Mr. Langstroth, whose failing health has for a long time made him unable to work, secured the co-operation of the Messrs. Dadant in 1885, and placed the work for revision into their hands. This choice could not have been better made, for Mr. C. Dadant, who was already an author and a writer of considerable experience, is also one of the most successful and advanced practical bee-keepers in America; and our visit to his apiary, when we made his personal acquaintance, is one of the pleasant reminiscences of our American tour.

In the book before us we have ample evidence, as we have had from his former writings, that he is, like Langstroth, a profound thinker and a careful observer. The revision has been made very carefully, the old and the new being so cleverly blended that it requires a thorough knowledge of the original to find out where the old ends and the new begins. Notwithstanding this, the individuality of the writers has been preserved, and many will be surprised to find so much that was written thirty years ago by the great master equally applicable now. The new edition has been re-arranged, and the physiology of the honey-bee dealt with first. Although this is largely compiled, there are also many personal observations of the revisers. We are pleased to find them stating that bees are attracted to honey more by scent than by sight, for this corresponds with our own observations, and we believe that the theory that certain lines and markings on flowers are there for the purpose of attracting insects has been carried to too great an extreme. That the 'ear-holes' are situated in the antennæ has not been proved and is very doubtful; but that the sense of smell is situated in that organ we believe to be true, as it has been abundantly corroborated. In these days, when there is a tendency to discredit that great bee-master, François Huber, it is quite refreshing to find our authors saying, 'Having repeatedly verified his most important observations, we take great delight in holding him up to our countrymen as the *prince of apiarians*.' They think that the queen does not know the sex of the egg she is laying, and believe that in laying eggs she is guided by instinct, like all other beings, for she always begins in spring by laying in the small cells, using large cells only when no others are in reach in the *warm part of the hive*. That a worker grows after she has left her cell (p. 73) we cannot admit. She may become more distended with air or food, and the hairs which lie close to the body at first may stand up, but the insect attains its *full* growth before it leaves its cell.

Speaking of fertile workers, they say that they have seen at least a dozen laying on the same comb, and as nature does nothing without a purpose, they think that as in some seasons drones are scarce, in order that other colonies should not be without impregnated queens, nature endows this worthless colony with the faculty of drone-raising. On page 86 they say these drones are *apparently* as perfect as the full-sized ones.

There are many passages we should have liked to quote and criticise, but want of space forbids our doing so at present, and we hope, as occasion presents itself, in the future to refer to them. We are reluctantly compelled to skip over a great deal, and simply remark that this and the following three chapters are full of matter well worth studying. In Chapter IV. we find a history of hives, and Mr. Langstroth's 'Requisites for a complete hive.' These have been reduced to twenty-six instead of the sixty-one of the former edition. The Langstroth, as well as a large number of other hives, are described and illustrated, also the hive the authors prefer, and the reasons for their preference, are given. As their experience is very great, and the experiments have been carried out by them on a large scale, we are not surprised to find them advocating a frame of the Quinby or Langstroth sizes, and condemning the shallow frames in brood chambers. They also advise the use of large hives, allowing the queen full scope for laying to her utmost capacity. Their experiments prove that small frames impede the laying of the queen, and contracted hives incite natural swarming. The width of *top bar* has something to do with the amount of *bridge and brace combs* built by the bees between the brood-chamber and upper storeys. A wide bar with narrow passages almost entirely prevents them, but it has disadvantages which have made it unpopular. They have discarded moveable honey-boards, and have nothing to obstruct the free passage of bees or queen between brood-chamber and upper storeys, and without such impediment as excluder zinc succeed in producing their large quantities of marketable honey. For the prevention of swarming they say, 'The breeding-room must be large enough to accommodate the most prolific queen,' and that 'there should be a sufficient amount of empty comb.' They place their hives low down, and with alighting-boards sloping to the ground; and on page 405 they say that 'in hives so arranged, and grass kept down, bees will be able to store more honey, even if they have to go a considerable distance for it, than they otherwise would from pasturage near at hand;' and this because many laden bees are by this means able to reach their hive, which would otherwise be lost. Under such a system, natural swarms with them do not exceed 3 to 5 per cent. The following chapters, treating of queen-rearing, rearing improved races, introduction of queens, different races of bees, apiaries, honey-houses, shipping bees, feeding, and wintering, are all interesting and full of information. Pasturage and honey plants are discussed in chapter xvi., and the next chapter is devoted to the production of comb and extracted honey. On 'Extracted honey, harvesting, handling, and marketing,' they wrote a pamphlet in 1881; and as they 'handled and sold 45,000 lbs. of extracted honey in three years,' our readers will see that they speak on this subject with authority. The same applies to comb-foundation, which they make on a large scale. We suppose they are the largest manufacturers of this article in the world, and have produced in one year 57,821 lbs. (For a description of this manufacture see *B. B. J.* 1888, p. 83.) Although

we may not agree with everything in the book, and some errors have crept in, the revision has been well done, and from the first to the last of the twenty-three chapters the book is full of interest. It contains more than 500 pages and 199 illustrations, beautifully executed and printed, besides 19 full-page plates, mostly portraits of bee-keepers. They have adopted the paragraph system, the same as in the *Petit Cours d'Apiculture pratique*, published by Ch. Dadant in 1874, and this facilitates reference to the same subject in different parts of the work. This, with a copious index, makes the search for everything bearing on a particular subject easy. We have but good words for this excellent book, which we have only cursorily reviewed, but can assure our readers that a study of it will be a pleasure in store for them. The standard work of Langstroth has lost nothing by the revision, and has gained considerably by the incorporation of the results of the long practical experience and observations of the authors. It is a work that should find a place on the book-shelf of every bee-keeper.

BEE-KEEPERS' VOCABULARY;

Or, Glossary of Technical and Scientific Words used in Works upon Bee-keeping.

Carpenter bees.—Bees belonging to the genus *Xylocopa*, of which there are a large number of species. The name is derived from the singular manner in which they build their nests, generally in soft decaying wood, and which they line with pieces cut out from leaves of plants. Also called *Leaf-cutting bees* and *Upholsterer bees*.

Carrier bees.—Worker bees old enough to leave the hive for foraging.

Carr-Stewarton hive.—A hive with shallow interchangeable chambers furnished with frames, and worked on the storifying principle of the Stewarton hive.

Cases for sections.—Boxes or crates in which sections are placed and held together while on the hives; wide frames filled with sections to be hung in the hive.

Cashiered stocks. (*L. cassus*, void, empty.)—Stocks of which the bees are destroyed; stocks from which the bees have been removed and united with other stocks.

Cast. *n.*—A second swarm of bees from a hive (Var. dial.)

Cast. *v. intr.*—To swarm, applied to bees (Scotch).

Casting. *sb.*—The act of swarming (Scotch).

Castlings. *n. pl.*—Used by Gedde and other writers to denote swarms after the first swarm; casts.

Casts. *n. pl.*—Second, third, and other swarms: by some used to denote any swarm.

Castration. *n.* (fr. *L. castro*, I cut.)—The act of taking away. Used by Butler to signify the pruning or cutting away of combs; also Exsection.

Carnauba wax.—A vegetable wax obtained from the surface of the leaves of the Carnauba or wax palm (*Copernica cerifera*) of Brazil. Used as an adulterant of beeswax. It melts between about 184° and 206° F.

Caucasian bees.—A race of honey bees found amongst the Caucasian mountains, rather smaller than the common bee, very dark, having a white band round the upper segment of the abdomen, are said to utterly fail in honey gathering.

Caudal. *a.* *L. cauda*, a tail.)—Pertaining to the tail.

ASSOCIATIONS.

THE IRISH BEE-KEEPERS' ASSOCIATION.

We have received a copy of the Annual Report of the above Association; and though the same discouragements which have been so heavily felt in this country have also visited the sister island, yet the Association may be congratulated on having so well maintained its ground during the year, the number of subscribers having been increased, and there is a strong feeling of hopefulness for the future. The Report states that 'the year 1888 was remarkable for a very spirited attempt made to interest the British public in the industries of this country by holding an exhibition in London devoted exclusively to exhibits from Ireland, and the Committee felt that they could not allow the industry, which it is the business of the Association to promote, to be unrepresented on such an occasion. Accordingly, a prominent position was obtained at the exhibition, and the erection and management of a stand entrusted to Messrs. Abbott Brothers. At first, with the exception of a few specimens of last year's honey, the stand was entirely occupied by an exhibit of Irish-made hives and appliances sent by members of the Association, certificates having been promised by the Committee for articles of special merit. At a later period the Committee sent over a large exhibit of new honey, collected in Dublin from members, and prizes were awarded for the best contributions to this exhibit.

'A decided advance was made last year in the business done by the Dublin depôt for the sale of members' honey, 5038 lbs. of honey having been sold for 160*l.* 11*s.* 2*d.*, as against 4363 lbs. sold in 1887 for 128*l.* 15*s.* 9*d.* All the honey sent to the Irish Exhibition was also disposed of. Of the honey sold at the depôt, 4310 lbs. were in the form of one-pound sections.

'During the spring of the year the market was very depressed, owing to the large surplus remaining from the stock of 1887, but the deficient yield of 1888 brought prices up, and for some months 9*d.* to 9½*d.* has generally been obtained for one-pound sections 2 in. wide and of good weight, the best having always realised the higher price. Narrow sections contain less honey than those of 2 in. width, and therefore, of course, are lower in price; but they sell better in proportion to their smaller weight. It should be understood that the depôt is by no means intended to be a universal substitute for the practice of selling honey locally, which must necessarily in many cases be more advantageous to members. Farmers especially might find it of great benefit, when sending round eggs, butter, &c., to offer at the same time clean, attractive-looking sections. The depôt, however, will probably always be found highly useful as affording to some members the only or the most convenient means for disposing of their produce, and as a supplement to sales in the neighbourhood, where the local demand is insufficient.

'The finances of the Association are in a thoroughly sound condition, since the small deficit shown in the accounts is due to an expenditure of 5*l.* last year for benefits to accrue this year, the above sum having been advanced to the Royal Dublin Society on their undertaking to give prizes for hives, and other bee-keeping appliances, at their next spring show.

'A new departure has been made by the appointment of district Honorary Secretaries for twelve counties, and valuable assistance has been rendered by the members who have kindly consented to act in this capacity.'

YORKSHIRE BEE-KEEPERS' ASSOCIATION.

It is very gratifying for me to find the efforts of our Association, in the direction of forming offshoots or branch societies of bee-keepers, are being seconded by local efforts. A week or two ago you noticed the formation

of the Knaresboro' District B.K.A., and I now have the pleasure of informing you that through the exertions of Mr. A. Woodhead the Goole District B.K.A. is now formed. This makes the sixth young association born in the last two years, all of which are doing excellent work *at home* in spreading a knowledge of the advantages of modern methods over ancient customs. When I can see my county respectably provided with offshoot societies, I will slip back into simple membership of my own district, and let some one else take up the running.—R. A. H. GRIMSHAW.

CHELTENHAM.

The following paper, by Henry Albert Purnell, jun., was read before the Cheltenham Grammar School Naturalists' Society :—

There is, perhaps, no more interesting or ancient industry than bee-keeping, dating, as it does, far back in the history of the world. Both bees and honey are frequently mentioned in Holy Writ. There is no evidence of them being kept for domestic purposes by the Jews, but there is little doubt that they must have been kept in very large numbers by the Egyptians, for the production of beeswax. We know quite well that it was the custom of the Egyptians to embalm their dead, and in the process beeswax was used to saturate the cloth in which the body was wrapped. Although large numbers of wild bees were found in their nests in the rocks, such a supply could not have been sufficient for all their wants; and if bees were not kept, as they are now, as an industry, they must have at least had the protection of the State.

Passing on to more recent times, we know they were largely kept by the Romans, for Virgil fully describes their habits in accordance to the knowledge of his times and the homes in which they were kept, which by his description were made of woven twigs, oval-shaped and plastered over with mud. There is little doubt the domestic bee was introduced into Great Britain by the Romans, and their form of hive still remains to the present day in the old-fashioned straw-skep hives, it being found that the open wicker work was not suited to our northern latitude and colder climate. For many centuries bees have been largely kept in this country, as a native wine called mead, prepared from honey, was the popular drink of the rich before beer or alcoholic spirits, and the wax in great demand to make the candles which have always been such an absolute necessity in the worship of the Catholic Church.

Until the last few years the system of bee-keeping was both cruel and wasteful, for after the industrious insect had toiled hard and laid up its store, it was ruthlessly killed by suffocation to rob the fruits of its labour; but now, thanks to intelligence and a better knowledge of its habits, a more humane system prevails. About forty years ago it began to dawn on several bee-keepers that the system could be improved upon, and chief among the pioneers was an American named Dr. Langstroth, who thought that by inducing the bees to build in moveable combs in wooden frames, he could take the honey without destroying the bees, and feeding them with artificial food to replace the honey he had robbed them of. Bee-keeping has now for the last few years made very quick progress, and has become a recognised industry in this country, as well as in several European countries, and also in America. It is no uncommon thing in Canada, United States, and California, for one person to have from 300 to 500 stocks of bees. It is not every one that can become a proficient bee-master; energy, perseverance, patience, and study, are required to ensure success. There is always something to be done, and the right thing must be done in the right time.

Now let us commence, and take a view of the work of a bee-keeper through the busy season. We will suppose it to be a nice, fine, warm day early in March (for until now the bees should have been left quietly alone in their winter quarters); he will then take a hasty survey of the interior of each hive, and see how they are provided with food, taking care not to expose them too long and reduce the temperature of the hive, for cold would be fatal to the brood, which should be now found in every good, strong, and healthy stock. Having satisfied himself that they have sufficient food to carry them on, he will now close up all warm and secure again for another month, but taking care to feed those that are in want. April having arrived, the queen should be laying vigorously, and the strength or inhabitants of the hive increasing rapidly, when it is now our duty to see that every hive has a queen, and, in case of loss, if it is not possible to procure one, which is somewhat difficult at this time of the year, the queenless stocks should be united with those having queens. Plenty of stores or feeding is now more essential than ever. From now onward until the honey-flow commences, when we must be prepared for swarms, which we may now expect any day from our over-populated hives, but with careful management, with modern or bar-frame hives, this can in great measure be prevented by giving plenty of room, adding extra frames, or putting on the top of brood hives the crate of empty sections, which will be rapidly filled with nice, clean, and pure honey. These must be taken off as fast as they are filled, and replaced with empty ones. The honey-harvest in a good year lasts about six to eight weeks, and a good strong stock in that time will store from fifty to eighty pounds of honey. In America, with their long summers and abundance of honey-producing flowers, and flowering trees in their natural forests, as much as two hundred pounds will be collected by one hive. Our harvest now being over, we must examine each hive again, and see that we have not robbed them too hard, for they have now six to eight months to live upon what they have stored by nature's instinct to keep them through the winter, when nothing is to be obtained out-of-doors. Having satisfied ourselves that each stock has at least twenty pounds of natural honey, or artificial food in the form of good syrup, and every hive containing a queen, we will now pack up all snug and warm, with our hives sound and weather-proof, satisfied that, all being well, we shall commence again next year in good health and strength.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements).*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

NOTES FROM NORTH OXFORDSHIRE.

[2056] Last autumn a gentleman who has large estates in Jamaica kindly presented me with a cask of brown sugar and a keg of tamarinds, both of which were highly appreciated. The only question was, how to dispose of sugar in such a large quantity, particularly as my servants prefer the more aristocratic kind known as 'white loaf,' for their own consumption?

My gardener, who acts as assistant bee-master, suggested that I should give the sugar to my bees, but I had read somewhere that bees, like domestic servants, have

refined tastes, preferring cube sugar to the coarser kinds. However, it ended in my making the experiment, and soon I had the contents of the cask safely stored in my hives (twelve).

On commencing bee-keeping two years ago, I read the Fourth Georgic over again, and was loud in my condemnation of Pastor Aristæus, who lost his bees by famine and disease. I called him 'the slothful shepherd,' 'the unworthy bee-master;' but since last autumn I find I judged him somewhat harshly. Indeed, I can now sympathise with him in the lamentations which he poured into his mother, Cyrene's, ear. America was not discovered in his time, and he had no sugar-cask to fall back on with which to feed the starving bees.

A skeppist in a neighbouring village complained to me, as Aristæus did to his mother, and in the autumn, I, taking pity on his case, purchased two stocks at 9*d.* each. They had not an ounce of honey in the combs, so I transferred them into an empty hive, with glass sides, of my own designing, which stands in my workshop window. They did not dash about in order to make their new home suitable to their wants, but they displayed a masterly inactivity, which I watched every day, until the place was full of comb, and, fed with my friend's sugar, they seemed to have thrived admirably. At the present time they are far more numerous than a stock in a similar hive alongside, which was a single swarm last summer. I also see the advantage here of having a floor-board, which can be swept clean in spring.

If my bees continue to do well, I think I shall advise my friend to establish a depôt for the sale of satisfactory bee-feeding sugar, as I believe it commands only a very low price in the market compared to genuine cane sugar refined. So far the suitability of this brown sugar appears conclusive. Four other bee-masters, whose hives I overlook, have lost all their bees, I believe solely in consequence of their feeding them on cheap sugar bought at the village shop, presumable beet sugar.

Another point which I think my experience shows to be important is, to make the penthouse over the entrance of the hive so low and sloping as, first, to prevent driving rain entering the hive at all; and, secondly, prevent the rays of the winter sun during frost and snow lighting up the interior of the hive and drawing the inmates out. I found putting up screens in front of the hive a clumsy expedient when a properly-pitched penthouse and alighting-board answer every purpose.

I make my own hives, and I find there is nothing in the whole range of amateur carpentry so satisfactory to make as a bee-hive. I have made a dozen during the rainy winter days, and I could not wish for anything better.—L.

P.S.—I regret to say that I only occasionally see the *B. B. Journal*, in which the sugar question may have already been fully settled; but I should certainly like very much to see reliable statistics showing the percentage of stocks which have succumbed during the past season fed on undoubted cane and other sugars respectively. Why is it generally asserted that sugar refined with certain foreign substances is better for the bees than the pure article? *Primâ facie*, such an assertion appears absurd. If my experience holds good I would suggest that it should be generally known where such sugar is procurable at wholesale price. I was astonished on opening my neighbour's hives to find the bees had perished in the midst of apparent plenty; the stores were there, but untouched.

One neighbour tells me he gave his bees the 'best sugar,' *i.e.* the most expensive he could purchase; but he could not vouch for it being derived from sugar-cane. He attributed his loss chiefly to cold, and declares he will return to straw hives, which he says are warmer.

Although my stocks are well and happy as yet, I believe I made a mistake in having many of my hives far too large. The following approximate estimate however, will show what I consider a very cheap method of starting bees, such as has actually been carried out by me:—

	s.	*d.*
Purchase of four condemned stocks	2	0
40 lbs. sugar at 1½*d.*	5	0
Two empty cube-sugar boxes	1	0
Extras—screws, &c.	0	6
	8	6

I divided one empty box with a partition in the middle; the other box, broken up, provided wood for the roof, double lining 9 inches deep, henhouse strips to cover cracks, &c. I have thus got two good strong combination stocks for 8*s.* 6*d.*, plus my own labour, or, as I should call it, amusement.

[To obtain reliable statistics, showing the percentage of stocks which have succumbed during the past season, fed on undoubted cane and other sugars, is impossible. We recommend pure granulated cane sugar, as we find that our own, and all other bees with which we are brought in contact, flourish best when fed upon same. Raw sugars always contain a varying quantity of matter neither appreciated nor of any service to the bees fed upon them. We may ask you a question: Where and how is treacle obtained? Allow a hogshead of raw sugar to stand for a short time up-ended, and treacle will exude from the bottom of it. Give this to the bees: they will not touch it. This being so, why should we provide them with an article contained in the raw sugar they will not consume? Why should we *pay* for treacle, which the bees dislike, when we can purchase sugar free from it? This is only one instance of the superiority of granulated sugar. You say that you can purchase pure cane sugar, fit for bees, at 1½*d.* per pound. We cannot; neither can one of the largest wholesale houses in London. There is a raw sugar as low as that, but it is not even good enough for the grocers to sell. The market quotation of good cane sugar at the present time is far above that price. The retail profit on sugars,—and what bee-keepers can purchase it wholesale?—is so small that it can be reckoned by fractions of a farthing, and yet at the largest grocers in London good raw cane sugar even at 2*d.* cannot be obtained. We therefore prefer to give 20*s.* or 21*s.* per cwt., which is under 2½*d.* per pound, for a granulated guaranteed pure cane sugar, and also to recommend it to all bee-keepers after obtaining such satisfactory results. You will find that your method of obtaining stocks of bees at 4*s.* each is not always practicable. In the manner in which you do it, the same results will follow by purchasing two straw skeps at 1*s.* 6*d.* each, which are preferable to rough boxes without frames, in which the bees have to waste all their energies during autumn building combs. The most satisfactory results will be obtained by placing the bees on ready built combs in a frame-hive, and then feeding them up, as by these means all the work the bees have to do is to store the syrup. Spring dwindling is not infrequently occasioned by the bee-keeper obliging the bees to wear themselves out in autumn comb building. A straw skep is no warmer than a properly constructed and packed frame-hive. This we have repeatedly proved by the simple plan of using a thermometer; in fact, a good, double-walled frame-hive gives greater protection by far than a straw skep.—Ed.]

HOWARD'S 'PARAGON' BEE HIVE.

[2057.] DESCRIPTION OF PARTS.

R.—*Roof.*

S. R.—*Section Rack.* Fitted with sections, dividers, hinged doors, and entrance passage. The inner walls of same are cut so as to form an end passage around outer sections when four bee-way sections are used.

H. B.—*Honey-board.* With 'Raynor' registered queen-excluder in centre, and an entrance passage as illustration. The queen-excluder is kept a bee-space from any work below by a metal strip. Thus free access is given to or from any part.

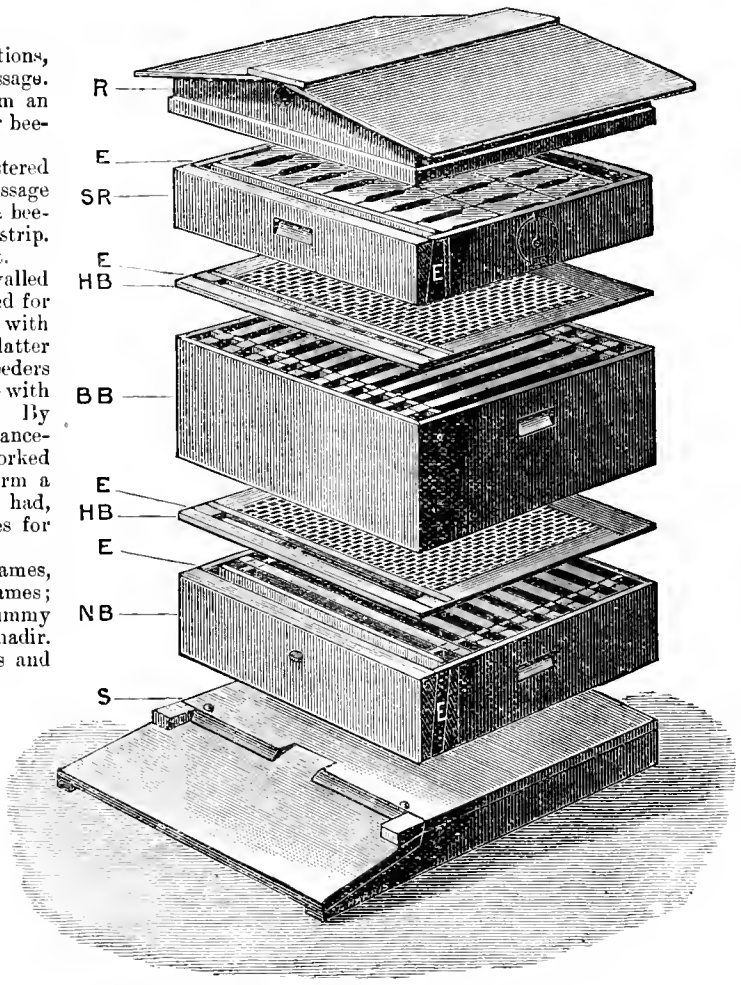
B. B.—*Brood Body.* These are double-walled front and back. Eleven frames may be used for brood-rearing. The bodies are sent out fitted with nine frames each and two dummies. The latter may, when necessary, be used for dry sugar feeders also. No. 2 slips of wood accompany, for use with any frame, which may replace a dummy. By placing such slip between the end of distance-keeper and the hive side, outside combs are worked out as the centre ones. A dummy, to form a passage entrance for brood bodies, may be had, should any prefer to work standard frames for surplus honey.

N. B.—*Narrow Bodies.* Fitted with nine frames, 5½ in. deep. No. 2 side slips for outer frames; also a hinged door and a passage entrance dummy for use when the narrow body is used as a nadir. Narrow bodies as supers hold eleven frames and two side slips.

Floor-board. Any body used on the floor may be shifted from front to back, or *vice versâ*, for regulating the entrance.

We find plain joints to hive bodies most easily worked, but for those who think them necessary, plinths may be used, so that anyone may soon render these hives plain jointed, for the separating of any work storified.

The 'Paragon' being square, any entrance may be shut off by turning round either the honey-board or the bodies used for supers; or if the slip of perforated zinc, accompanying each honey board, is run in its entrance, a top ventilator is formed.



Having described the construction, the illustration will convey how each part is separate and in itself complete, and that any such part or parts may be worked for the desired end of comb or extracted honey. 'Dunbar' (No. 2039) has so well described the principles of working, that I need say no more on this point.

In this hive and its principles it is plain to all intelligent bee-keepers that there are no parts (save the dummy passages to brood and narrow bodies) which will not avail a purpose in prosecuting the practice of honey-gathering as NOW CARRIED ON; therefore, in this respect there can be no waste outlay.

The orthodox 'Tempt your bees into supers by worked out combs' had long pointed me to a development of construction in a hive which would give bees, as well as worked out combs, both available at one and the proper time, for super position; and in my observations of actual bee-life, I was pointed to the fact that if the bottom and natural development of virgin comb (with *its* workers, were given in super position), such would take the place of those cells which are always first accepted by the bees in their natural work, viz., those which are left above the brood as downward, and yet downward their work may tend. The very fact of the ready acceptance (by the bees) of wrought out cell-work, and such being more readily worked *below* than above, the brood, is surely an indication to all that we must 'milk our bees' for comb at one end and honey at the other.—JOHN H. HOWARD, *Holme, Peterborough.*

AN ECHO FROM A SCOTTISH GLEN.

[2058.] I have been a reader of the *Journal* nearly three years, but have not contributed an experience, echo, or letter during that time. This must not be put down to indifference, for the *Journal* is a very welcome visitor, and I frankly confess my indebtedness to it for any knowledge of bee-keeping I possess; and have preached its virtues to all bee-keepers around me, but have signally failed to increase its circulation, chiefly because of its price. I am glad to see that that objection is to be removed, and hope the penny *Journal* will quadruple the number of readers and handsomely recompense the proprietor. Let me also congratulate the proprietor on making arrangements for better attention to Scotch business. I have always thought that the paucity of Scotch experiences and echoes was hurtful to the fraternity in Scotland, and never could account for it, as there are lots of very intelligent bee-keepers scattered over the country. With a penny *Journal*, and Mr. McNally as Scotch secretary, let me hope there will be many 'useful hints' applicable to Scotland and beneficial to bee-keepers in her remote glens. Hitherto when I read what was going on in the south of England I had always to solve a sort of geographical puzzle—when

should I do this at the foot of the Grampians? All that will be avoided in future.

In April 1884 my oldest lad was presented with a skep, but shortly after had to leave home to enter an apprenticeship, and I undertook to look after the bees. Swarming time came on, and I caught the fever. Skeps did not suit me at all; a straw skep was a sealed book to me. I heard of bar-frame hives and had two or three ready for next season, and these have gradually inreased to nineteen, and to-day, I am proud to say, they all look as if they will give a good account of themselves in the coming season. All bee literature that has come in my way has been carefully read—the *Journal* and Mr. Cowan especially—and as there was no friend near me who knew anything of frame-hives I had to put in practice the many useful hints culled from them, and am well pleased with my success. There have been very few mishaps; nothing like a mess or disaster.

Last season was enough to damp the ardour of many bee-keepers, especially those expecting and partly depending on a profit. I did not escape that calamity, but, thanks to the extractor (by a judicious use of which I was enabled to clear all expenses for the season, provide well for my bees through the winter, and have a trifle over), I am therefore not at all disheartened, but very anxious to enter on the campaign of 1889.

My location is between the clover and heather. There is no need to remove hives from the apiary to take advantage of either of the two harvests, while in spring there are a good many willows, hazels, and other pollen-producing plants about on which the bees revel. Perhaps some of my bee friends will envy my situation, but the yield of honey may be the best criterion, and I may state that (leaving out last season) the average per hive has varied from 35 lbs. to 50 lbs. all section honey. In 1887 I had three hives over 80 lbs. each, four over 70 lbs., and three over 60 lbs., nearly all clover, the heather being next to a failure owing to a long spell of dry weather.

Many skeppists told me last autumn that their hives were very poorly provisioned for the winter. I strongly advocated feeding—my advice in many cases was neglected; they hoped the bees would survive till spring and then feeding would begin, and now when spring has come they have no bees to feed. So far as I can learn the skeps that swarmed last season are nearly all dead; a few frame-hives have also perished. There are people who keep bees in a very haphazard sort of way; give them no attention, but are looking all the same for a big lump of honey in the autumn when the poor bee is consigned to the brimstone pit—and these people tell me that they will have none of my new-fangled notions.

There is quite a variety of subjects discussed in the *Journal*, such as long and short entrances, porous and non-porous quilts, parallel and right-angled frames, &c., which I read and am interested in, but cannot help thinking there is too much made of them. I have tried them all pretty successfully, and cannot give a prefereuce. My method hitherto has been to select the 'tit-bits' and put them in application as opportunity arose, always keeping in view my locality and the circumstances of my apiary.

Wintering is a very important subject, but is very much neglected in this locality. I have had experience of five winters, and some of them protracted far into the spring without a single loss. In October my bees go into winter quarters. I take good care that each hive has abundance of food, place a quilt (pervious or impervious) over the frames, a thick layer of warm stuff above this and fill the cover with hay, straw, or bracken, and thus they stand till April. If the weather is fine and bees flying freely I now give a little syrup daily in half-a-dozen vessels in the open; and though this mode of feeding has been strongly objected to in the *Journal* I have found it very convenient and satisfactory, without the least encouragement to robbing. In May I give, if possible, clean hives to all stocks and add frames gradually, which generally leads to a densely peopled hive about the middle of June, when my honey harvest begins.

'Juvenile bee-keeping' was ventilated in the *Journal* last year, but has been neglected of late. Ever since I began bee-keeping there have always been two or three of my boys shadowing me in all my movements in the apiary. They help me in all things necessary, are thoroughly enthusiastic, and are now very busy preparing for 'coming events.' Perhaps this is the way to rear the bee-keeper of the future.

I am sadly tormented with a neighbour, an old maid, whose garden adjoins mine. The bees have been busy on her crocuses of late. She has placed several bottles containing syrup, by way of bee-trap, among her flowers. I see my bees killed daily, and cannot prevent it. Could any reader advise me how to gain over this creature? She will not accept 'palm-oil,' else I would freely give her the best section or two of next season. I have never wronged her, but have exposed this conduct to every bee-keeper I have met. They say she is vindictive enough to bottle myself if she could, and I think it true. —Woodburn, *4th April*.

SHALLOW FRAMES.

[2059.] I must apologise to 'H. P. D.' for never replying to his letter of November 22nd. The truth is, I never saw it till two days ago, when my attention was directed to it by chancing to see something referred to which I knew I had written in a letter of 'Alpha,' whom I must thank for taking my duty upon him. Being away from home the greater part of the year, I have not found time, specially lately, for reading up the *B.B.J.*, some numbers being still uncut, consequently I have this year taken the *B.B.A.* instead, in which, or by letter, I shall be pleased to answer any question of 'H. P. D.;' but for the reason before mentioned, I feel hardly competent to give an opinion, as I have never had a fair trial of the $\frac{1}{2}$-in. frames, being absent nearly all the honey season. Still, I have no reason to be anything but satisfied with the size, and after this season, when I hope to be at home for the honey, shall be better able to judge of their value, and report results.—Buzz.

THE HONEY BEE IN IRELAND.

[2060.] I enclose a cutting from the report of a meeting of the Dublin Philosophical Club, *Dublin Farmers' Journal*, of 23rd January. I fancy some of your readers will see something to set them thinking over. There may be some connexion between impervious quilts, the moisture of the summer of 1888, and the population of the hives, but I doubt it, at all events, in the way Mr. Gillies puts it; but I was not prepared for the statement about the inspectors appointed to examine each incoming bee at the mouth of the hive, and if a bee was not full of honey, turn the poor worker back, and say there was no admittance to the hive except with a full sack of honey.—Mangerton.

'Mr. J. M. Gillies read a paper on the Position of the Honey Bee in Ireland, in which he said two phenomena had presented themselves to bee-keepers during 1888, which he considered worthy of attention, namely, the failure of the honey supply, the fact that the number of bees in each hive were greater than usual. The summer of 1888 was a continuous April, and although there was a considerable amount of sunshine to admit of the bees flying, the rains were so frequent that it was possible the flowers might not have been able to secrete nectar

of proper consistency. As to the increased number of bees, he could only mention the fact that when bee-keepers wished to stimulate brood-rearing, they fed with rather thin syrup, and frequently used a waterproof quilt over the bees to prevent evaporation, so that watery feeding might account for the phenomenon. With regard to the present position of the honey bee in Ireland, he thought an industry existed of sufficient magnitude to warrant their devoting some attention to it. There were at any time during the summer of 1887 (he regretted the returns did not bring them further down), about 1,000,000,000 bees at work in Ireland, and as a bee lived about six weeks in the busy season, it took four times that number to store about 500,000 lbs. of honey, or the life-long energy of 8640 bees to produce each pound of honey of commerce, *i.e.* surplus honey. Mr. Gillies then quoted figures to show that great progress had been made in bee-keeping during the last few years.

'In reply to a quotation of Dr. Fraser, Mr. Gillies said the Ligurian bee was not taking any hold on the country. It was rather exploded now, and the old black bee was regarded as the best.

'Mr. Moore thought that Mr. Gillies' description of the summer of '88 as a continuous April was a very happy one. Our springs were getting later and later, and last year's was an exceptionally late and harsh spring. The result was that the flowers which should open in April and May did not open till June and July, which were very wet months, and the nectar was no sooner secreted than it was washed out, so much so that there was a noticeable want of seed from summer flowers this year, as those who took an interest in gardening would know. This was followed by what was fittingly described as an Indian summer in September, and the flowers were better than they were during the rest of year. The bees, however, were not very active in September.

'Mr. Gillies said heather was the only flower available then.

'Mr. Draper read a paragraph from *Nature*, in which it was stated that bees had been observed to stand on their heads in hot weather at the entrance to the hive, and by rapid motion of their wings ventilate it.

'Mr. Gillies said, no doubt there were ventilating bees told off by the other members of the hive, but they did not stand exactly on their heads. They adopted an inclining position. There were other bees stationed like inspectors at the entrance of the hive to feel the honey-bags of the workers, and to admit none who had not their bags full.'

Echoes from the Hives.

Odcombe, Ilminster, April 13th.—On the 10th inst., being a calm and mild day, I took the first opportunity of thoroughly examining all my stocks, eighteen in number, and found them in a far more prosperous condition than I expected, as I feared several stocks were queenless. Not one, however, proved to be so, as on an average there were three combs of capped brood and plenty of sealed syrup. One of the stocks has a drone-breeding queen, but as this is the only misfortune I think I have come through the winter well. I wintered all on seven frames and covered with about two inches of cork-dust, and the entrances were open about six inches. Some of my hives face south and others east and others west, but I can see no difference in their condition. I hope real spring weather will soon be here, and that we may have some cheerful echoes again.—J. Sarell.

Lismore, April 15th.—A very bad winter for bees here. Queens have given out on every side. I lost *five* healthy fine stocks from queenlessness. Plenty of stores, but of brood or queen not *one trace*. Three had young queens, but they were fertilised rather late; one had been six weeks in the hive before laying.—F. C.

NOTICES TO CORRESPONDENTS & INQUIRERS.

H. Ritchie.—*Greenock Bees.*—It is not easy to say with certainty what is the actual cause of the mortality among the bees, samples of which were sent for examination, but it would appear to arise in some way from the nature or condition of the food. A number of specimens have been opened, and the contents of the alimentary canal microscopically examined. All contain large quantities of what appears to be pollen intermixed with compound starch granules and spores of some kind of fungi. The absence of crystals of saccharine matter is very noticeable. Except in cases where an excess of watery matter had promoted decomposition, the organs appear healthy; and so far from any appearance of starvation, they are, in most cases, gorged with material which they seem to have been incapable of assimilating. The starch-like granules are not unlike those obtainable from the crocus and *Arum maculatum*. It might be worth while to examine the syrup with which the hive has been supplied to see if there is any sign of fermentation, large quantities of spore-like bodies suggesting the idea that they might be those of *Torula*, or *Penicillium*.

Guillaume.—*Uncapping Stores.*—There is little to fear; the bees will take advantage of the stores and uncap as wanted, and it is better not to open the hives till warmer weather comes. When uncapping, do not shave the lids off the cells; merely pass the blade of the knife along the combs to bruise the lids. See that all the packings are closely laid on the frames after opening as at this season heat is necessary for brood-raising.

Doubtful.—*Spacing Frames.*—The strips of tin you propose for the bearings of the frames will no doubt answer very well, but they are liable to rust. Why not mark the distances on the rabbets? Place all the frames in the hive and arrange them at one and a quarter inches from centre (of top-bar) to centre. Then mark, say, with a small, sharp-pointed awl, the position of the ends of the top-bars on the bearings, and you will find these marks a sufficient guide when manipulating.

O.—*Volume and Weight.—Query:* 'What is about the relation between volume and weight of honey? I want to make my honey tanks so that at any time I can see about what weight of honey I have in them.'—*Answer:* The specific gravity of the different kinds of honey varies considerably. Sometimes the bees gather liquid which is little more than sweetened water. At other times the nectar stored in the cells is so dense that it solidifies before the bees have time to seal it, as in the case of ivy and heather honey. Good clover honey, extracted after being sealed, has a specific gravity of 1·370, which may be taken as the average specific gravity of British honey. A cubic inch of pure (distilled) water weighs ·0361 lb. Hence ·0361 × 1·370 gives ·04945 lb. as the weight of a cubic inch of clover (average) honey. Therefore, ·04945 × 277·27 (= cubic inches in an imperial gallon) gives 13·7146 lbs. as the weight of a gallon of average honey, or, in round numbers, 13¾ lbs. to the gallon; and tanks, or 'ripeners,' may be graduated in gallons or parts of gallons, or to weight, as required or found convenient. The weight of an imperial gallon of distilled water is 10 lbs. Syrup made of 7 lbs. of cane sugar dissolved in 3 lbs. of water has the specific gravity of average honey.

Thomas Davies.—We shall be pleased by your application to us in any difficulty in which you may find yourself placed. Please direct your letter to the Editor in accordance with the instructions in the *Journal*.

W. H. Ley.—*Drone-breeder. Queenless.*—Either the queen is a drone-breeder, or the drone-brood proceeds

from a fertile worker. Examine thoroughly, and if you find a queen destroy her. If not, you may introduce a queen. We advise you not to trust to the queen-cells in the other colony, at this early period, but to introduce another queen to it also, as you say there are plenty of bees in both colonies and you do not wish to unite. Queens may be procured from any dealer.

WM. MITCHELL.—*Packing Bees for Travelling.*—Tie the combs and frames with tapes the same as in transferring, and send in box with perforated zinc top, and send hives by goods train. If you send hives and bees by passenger train it will cost more than the expense of the boxes.

A BEGINNER.—*Uniting.*—You can unite and allow the queens to settle supremacy, but it is unwise. Cannot you find a friend with better eyesight to discover the queens for you?

R. DE B. SANDERSON.—1. *Adding Frames to Stock.*—Do not be in too great a hurry to do this. Add a frame when the bees become inconveniently crowded, and then only during warm weather. It is too early yet for reason of the backwardness of the season. A flourishing colony will require a second frame in four or five days if weather is warm. Ten standard frames are quite sufficient for a stock before supering. In your district, which is later (about two weeks) than in the south, ten frames by the end of May will be very good. 2. *Best substitute for Pollen.*—Pea flour, or pea and wheat or rye-flour in equal proportions; the latter is cheaper. 3. *Stimulative Feeding.*—Syrup. Keep on slowly feeding until honey comes in.

F. HEAD.—*Chilled Brood.*—It is a case of chilled brood. Pieces of comb should be sent in a wood box, as cardboard boxes always get smashed with their contents; it is then very difficult to diagnose.

WILLIAM GRIFFIN.—*Carbolic Cloth Recipe.*—1½ oz. of Calvert's No. 5 carbolic acid; 1½ oz. of glycerine; 1 quart of warm water. The acid and glycerine to be well mixed, and the bottle to be shaken before using. The cloth should be steeped in the solution, wrung dry, and spread over the top frames of the hive as soon as the quilt is removed.

T. ROBINSON.—Your sample of sugar is not cane sugar, but it is about equally as valuable as white lump sugar as a food for bees.

Received from Mr. C. Howes, of the Apiary, Cottingham, Hull, his Catalogue of Bee-keeping Appliances, 48 pp.

Received from Mr. J. H. Howard, Holme, near Peterborough, his Illustrated Catalogue of Bee-hives, &c., 36 pp.

THE BEE-KEEPER'S POCKET COMPANION. With Monthly Calendar and many interesting Notes. Also Tables for Registering Condition of Hives; Notes on Direct Introduction, Prevention of Swarming, Dry Sugar Feeding, and other matters of importance. By S. Simmins, author of *A Modern Bee Farm, and its Economic Management, &c.* (Crown Bee Company, Rottingdean, Brighton.)—This little 'Companion,' from the trustworthy hands of Mr. Simmins, will be found serviceable to all bee-keepers. It contains a daily calendar for all the months of the year, with notes of interest to bee-keepers, both historical and apistical. It has notices respecting Carniolan queens, dry-sugar feeding, contracting the brood-nest without mechanical contrivances, prevention of swarming, direct introduction of queens, statements of the weather to be expected, simple method of transferring, and a hive register. It is a veritable *multum in parvo*, and every bee-keeper should possess a copy of it.

Business Directory.

HIVES AND OTHER APPLIANCES.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin
APPLETON, H. M., 256a Hotwell Road, Bristol
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
BUBTT, E. J., Stroud Road, Gloucester.
EDEY & SON, St. Neots.
GODMAN, A., St. Albans.
HOWARD, J. H., Holme, Peterborongh.
HUTCHINGS, A. F., St. Mary Cray, Kent.
MEADHAM, M., Huntington, Hereford.
MEADOWS, W. P., Syston, Leicester.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
STOTHARD, G., Welwyn, Herts.
WALTON, E. C., 82 Emmanuel Street, Preston.
WEBSTER, W. B., Binfield, Berks.
WOODLEY & FLOOD, 26 Donnington Road, Reading.
WREN & SON, 139 High Street, Lowestoft.

HONEY MERCHANTS.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
BALDWIN, S. J., Bromley, Kent.
EDEY & SONS, St. Neots.
HOWARD, J. H., Holme, Peterborough.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.

FOREIGN BEES AND QUEENS.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
BENTON, F., Laibach, Carniola, Austria.
EDEY & SONS, St. Neots.
HOWARD, J. H., Holme, Peterborough.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.

METAL ENDS.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
EDEY & SONS, St. Neots.
GODMAN, A., St. Albans.
MEADOWS, W. P., Syston, Leicester.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.

COMB FOUNDATION.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
EDEY & SONS, St. Neots.
HOWARD, J. H., Holme, Peterborough.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
STOTHARD, G., Welwyn, Herts.

COMB FOUNDATION MILLS.

GODMAN, A., St. Albans.

HONEY GLASS MERCHANTS.

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BLOW, T. B., Welwyn, Herts.
PEARSON, F., Stockton Heath, Warrington.

NOTICE.

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THE BRITISH BEE JOURNAL

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Editorial, Notices, &c.

WINDSOR EXHIBITION.

Exhibitors are reminded that entries for this Exhibition close on Wednesday next, May 1st. Honey of any year is admissible. In respect to honey of 1889, in the event of the season being unfavourable, provision is made for returning the fees. We therefore urge that a large entry may be made in the hopes that an early season will favour both Exhibitors and the Executive.

WINDSOR SHOW—NEW RAILWAY RATES.

In our issue of March 7, we called the attention of the bee-keeping public to the special fund which had been opened by the British Bee-keepers' Association on behalf of the Windsor Exhibition, which will be held during the last week in June. We are pleased to note that the Lancashire and Cheshire B. K. A. have led the way by opening a special fund in their own district; and it is to be hoped that this example may be followed by the other associations affiliated with the British. This fund affords a favourable opportunity for county and district associations testifying their approval, and coming to the support, of the parent association. The Windsor Exhibition should prove the union, strength, and ability of bee-keepers to do the work entrusted to them in a thorough and business-like method.

The following subscriptions have been promised:—

Mr. H. Jonas	£2	2	0
Mr. Thos. W. Cowan	3	3	0
Rev. E. Clay	1	1	0
Captain C. D. Campbell	1	1	0
Proprietor *British Bee Journal*	3	3	0
Rev. Dr. Bartrum	0	10	6
Rev. Geo. Raynor	1	1	0
Hon. and Rev. H. Bligh	1	1	0
Rev. F. T. Scott	2	2	0
John Huckle	0	10	6
Geo. Henderson	0	10	6
W. B. Carr	1	1	0
Miss Eyton	0	10	6

If our readers will refer to page 192 of the present issue they will note the report of a meeting convened by the B. B. K. A., showing that they have taken in hand the question of the proposed increase of railway rates so far as they affect the bee-keeping industry. The matter is most important both to bee-keepers and to the manufacturers of appliances. The special Committee appointed by the Conference, consisting of Messrs. Jonas, Hooker, and Blow, have lost no time in proceeding with their work. At the first meeting, held on Thursday last, the Committee were unanimously of opinion that the B. B. K. A. should be affiliated to the Canal and Railway Traders' Defence Association.

The affiliation-fee in this case, together with other expenses attending the carrying out of this work, will involve a considerable expenditure; and as the Association possesses no funds available for such a purpose, the Committee must rely on the generosity of bee-keepers, the manufacturers of appliances, and the affiliated associations, to assist them in every possible way.

CENTRAL AFRICAN BEES.

The varieties of the honey bee are so numerous, and their colours and qualities so distinct, that queen-raisers and apiarians generally are much exercised in their minds as to which race really the palm is to be given. In this nineteenth century, with its inventions and rapid transit, we are apt to imagine we know everything. To bee-keepers, with the Ligurian, the Cyprian, the Syrian, the Carniolan, the Minorean, the Egyptian, the Mexican, the various varieties of our English black or brown bee, the small Brazilian bee (stingless), the various races of Indian bees, *Apis dorsata*, *Apis florea*, *Apis indica*, —all races of which we know something about, some possessing greater stinging powers, and others without any weapon for protecting themselves, one race extolled for its beautiful markings, whilst another proves to be an excessive swarmer; whereas the generality of bee-keepers, whilst listening to the advocates of this or that race, or this or that particular cross, are apt to lose sight of the qualities that are absolutely essential in a bee for successful and profitable management. In the midst of all this comes news from the Dark Continent, from the centre of Africa, of great interest to bee-keepers. In Mr. Stanley's letter to the Royal Geographical Society appears the following:—

'The party were much exercised as to what might be the poison on the heads of the arrows by which Lieutenant Stairs and several others were wounded, and

from the effects of which four died almost directly. During a halt at Arisioba, several packets of dried red ants were found, and the secret was out. The bodies of these insects were dried, ground into powder, cooked in palm-oil, and smeared on the points of arrows, and this was the deadly irritant by which so many men had been lost with such terrible suffering. Any number of poisons from insects could be prepared in this way. They were made in the woods, since it was forbidden to make the poison near a village. He could, said Mr. Stanley, have written a book, or several books, upon the various species of bees, and the multitude of curious insects they had seen, for what with the bees, the wasps, and the various kinds of ticks and gnats, their lives had been made as miserable as they could well be.'

Here we evidently have a new race of bees, perhaps of very great value. The great explorer must have been much struck with them; and further, Mr. Stanley speaks with astonishment of the immense piles of oyster-shells found on islands in the river Arnwimi, and of the number and size of the flies, butterflies, and insects of all kinds. The mornings were generally lowering and sombre, everything being buried in thick mist, which cleared off sometimes not till 11 a.m. While this lasted, nothing stirred, and the forest was still as death; but if no rain followed the darkness, the sun would appear, the mist would disappear, and the face of nature become alive again.

It makes one long to know more of these bees. Mr. Stanley remarks on the great size of the insects, so probably the Central African bees are very large, possessing stings of course, as he speaks of the trouble they caused the party; but it would be impossible to say how quiet they might prove in a bar-frame hive, and how, if introduced into England, they might supersede all the present known races, and revolutionise the size of our frames, hives, and entire system of bee-keeping. This Central African bee (who can tell?) may prove to be 'the coming bee' of the future. For years, nay, generations, we may not be able to obtain a swarm of these large bees, as the country where they abound is almost inaccessible when we read that it took Mr. Stanley 160 days to traverse a single forest, the party surrounded by fearful and terrible troubles.

USEFUL HINTS.

Weather.—During the last fortnight many parts of the country have been visited by snow-storms, heavy rains, and floods, and vegetation has made but little progress.

Fruit-trees—pears, plums, and early apples—show promise of much bloom in the bud, but the only bloom out is that of peaches and nectarines on our garden walls. Forage for bees, in consequence, is scarce, but the last few days a higher temperature has prevailed, and the bees have been working hard on willows and other pollen-yielding trees, the ribes—*sanguinea* and *aurea*—being great favourites, and the alyssum, with its beautiful white bloom, is covered by foragers all the day long.

Spring Dwindling, judging from the accounts we have received of the spring visits of some of our experts, prevails in too many districts, and many a colony which was considered safe a month ago has succumbed already. What is this 'spring dwindling?' It is a gradual decrease in the population of a hive during the early spring months, until the vanishing point is reached. Its causes are various—such as dysentery, too early stimulation, &c.; but the chief cause, in our opinion, is too great a preponderance of old and worn-out bees, which die off before young bees can be reared in sufficient numbers to take their place. Hence, as we anticipated, this scourge of the apiary is more prevalent now than it has been for many a year. We are often met with the question, 'Why have my bees died? I fed them copiously in the early autumn, as you advised, the food was properly sealed over, and there were plenty of bees; but now, with combs still full of ungranulated sealed food, I find a handful of dead bees only, with a dead queen in their centre.' Such in, alas! too many cases, is the result of the terrible crisis through which we passed in the cold and wet summer of 1888. During the months of July and August, when the winter-surviving bees are usually reared, there was, in many districts, an almost total cessation of breeding caused by low temperature and unceasing pouring rains. No honey was stored. Then came the feeding in quantity to provide winter stores, and a further strain was put upon old bees in ripening and storing a large quantity of syrup. Thus September and a part of October were passed in most apiaries, and the colonies passed into winter quarters with a population consisting of nine-tenths of old and worn-out bees. As the spring approached this effete and superannuated population disappeared, and the result—a legacy of a handful of dead bees we call *spring-dwindling!* If it be any consolation to our brethren,—who, like the mourning Aristæus, are bemoaning the loss of their bees,—to know that such loss, under the circumstances, was unavoidable, let them take comfort and hope for better times. Such a consensus of untoward circumstances, compassing so great a destruction of bee-life, may not occur again during the longest lifetime of the youngest apiarist now in existence.

Mr. Allen Pringle's remarks on this subject, in our issue of the 11th inst., are very much to the point where he says:—'The dying off of the old before the young can take charge is natural enough.' [Under the circumstances above referred to, we grant.] 'Most experienced bee-keepers have noticed with what startling rapidity the old bees will sometimes die off from a populous colony in the spring, apparently in perfect health and under favourable weather conditions. In such cases, the bees are probably about the same age, having been hatched about the same time in the fall' [or during the previous summer], 'and they all go off at their "appointed time" together. I have occasionally had colonies depart this life in that summary fashion, leaving young brood utterly unprotected.' So have we, but it is by no means a case of common occurrence. The first remedy which Mr. Pringle suggests is 'a good, young queen, so that the young bees may come forward in the spring fast enough to take the place of the dying old ones.' This is all very well in ordinary cases of 'dwindling,' but the case we have now to deal with is an extraordinary one. During the late cold and wet summer, where bees did swarm in numerous instances, as was remarked by most bee-keepers, they appeared to have a mania for changing their queen, and many a colony superseded its one-year-old queen. In many colonies now dwindling, we have noticed queens of the last summer. Our experience is that young and most prolific queens will be of no avail in a bad case of spring dwindling. By such a queen eggs are deposited—often two or three in one cell—outside the circle which the bees can cover, and thus perish. The queen, therefore, is powerless to retrieve the fortunes of the colony.

Encasing or 'Balling' Queens.—Mr. McClure, secretary of the Lancashire and Cheshire Bee-keepers' Association, writes to us respecting an utterance of Mr. W. B. Webster to the effect that '"Balling" will most certainly occur at the rate of about ten per cent during autumn manipulations, unless special care is taken to

guard against it. We find that a colony with stores all sealed is the most difficult to handle; it is also most likely to "ball" the queen. A colony that has been most vigorously repelling robbers during the day—which event often takes place in autumn—is also at the rate of about fifty per cent likely to "ball" the queen, if manipulated immediately afterwards.' With this view, taught by experience, we are in agreement, but the question is—'Is it not preventible?' to which we reply most undoubtedly it is. Mr. McClure writes:—'These remarks have given me some thought and anxiety, as it has been our custom to send out our expert more frequently in the autumn than spring. Robbing, as we are all aware, takes place at all times when bees are flying and a dearth of honey prevails. In most localities these conditions occur simultaneously more frequently during the months of August and September, perhaps, than at any other time of the year. Nevertheless, robbing at spring is very frequent, the inducements being colonies weak from spring dwindling, or other cause, and lack of forage in the fields. Encasement of queens during manipulation, in our experience, is just as liable to take place in spring as in autumn, unless due precautions are taken. Actual robbing, or irritation arising from a late attack, is generally the active cause of bees encasing their own queen. When a hive is under manipulation during the pilfering seasons, it is soon surrounded by the bees from other hives, and queen encasement follows. The remedy is simply to manipulate when bees are not flying—in the early morning or evening—and to use the carbolic cloth. The manipulation of all hives at early or late hours is, of course, impossible to an expert on his rounds; but under skilful manipulation, and the use of the carbolic cloth, there is no danger of queen encasement. By the scent of the carbolic acid the bees under manipulation are too much cowed to encase their queen, and raiders will give a wide berth to the hive covered with a carbolic cloth. We speak not from theory, but from experience. During the last few years, since we have discarded smoke and smokers from our apiarian practice, and have used the carbolic cloth only, we have met with no queen encasement during manipulation. Under these conditions an able expert, at all times of the year and at all hours of the day—when the atmospheric temperature is sufficiently high—may undertake manipulation without the slightest risk of danger.

Of frequent manipulation we are no advocates. Autumnal and spring examinations, for ascertaining the conditions of bees and queens, are, of course, a necessity in every well-ordered apiary; but exceptions may occur. Beyond this the less disturbance the better for the bees. To beginners and novices the temptations to obtain an interview with the queen, or to show her to a friend, &c., are great, and many a good colony has been utterly ruined by over-manipulation; but when the novelty has worn off and sober experience prevails, there will be small inducement to the practical apiarist to worry his bees to death by incessantly breaking up the brood-nest in order to gain a sight of the queen. This advice applies with greater force in the case of native English bees than in that of any other race, especially the Italian or Carniolan, which are far less excitable under manipulation than the native race. English bees are ever shy.

As regards Mr. Webster's views of queen-encasement it is quite in accordance with all experience that 'a colony with stores all sealed is most difficult to handle.' Why? Because the bees are unable to fill their honey-bags. But we should hesitate to assert that irritation of such a colony by manipulation is a frequent cause of queen-encasement. The chief cause, in our opinion, is the entry of strange bees into a hive, when the bees of the colony immediately encase their own queen—a method of saving her life, and so of self-preservation—which, in prolonged encasement, often causes her death, and a queen, after escaping from encasement, is often permanently injured as regards fertility. Again Mr. W. tells us that 'a colony which has been vigorously repelling robbers during the day is also very likely to "ball" its queen if manipulated immediately afterwards.' Most true, no doubt, because the irritation, aroused by the raiding attack, is consummated by immediate manipulation, and 'balling' follows. Probably, also, the raiders are hanging about ready to pounce upon the exposed stores.

A Jersey Bee-keeper, in reference to a quotation we made from Mr. Simmins's book ('U. H.,' p. 147), in which he alludes to the 'almost total exclusion of honey from contracted brood-chambers, worked on Mr. Pond's and Dr. Tinker's methods,' 'harks back' to our statement in 'U. H.' on p. 27—that, 'However contracted the brood-chamber may be, we have rarely seen its combs more than two-thirds, or three-fourths full of brood, the remaining one-third, or one-fourth—*above* and *around* the brood—being invariably assigned to stores of *unsealed* honey, and pollen.' A *Jersey Bee-keeper* asks if this is so. We certainly think that nine out of every ten experienced bee-keepers will agree with us on this particular point. Has any one ever witnessed a brood-nest without its surrounding stores of honey and pollen, above and on the sides of the nest, but rarely below it? Is not this the food required—a mixture of honey and pollen—for almost momentary use, in feeding the larvæ, by the nurse-bees? and how could we, therefore, expect to find such food stored in another compartment, separated from the brood-nest?

But this fact by no means militates against the storage of the main honey crop in supers or nadirs. All that we intended to imply being that, *since* in the brood compartment the bees *will* store sufficient food for the constant nourishment of the brood, *therefore* the brood-chamber required to be rather larger than the one recommended by Dr. Tinker, and also to show that 40,000 workers could not be reared every twenty-one days in his brood-chamber of the capacity of 830 cubic inches.

Both pollen and honey, in sufficient quantity for brood-rearing, will be stored around the brood-nest, whether the frames are spaced at $1\frac{1}{4}$ or $1\frac{1}{2}$ inch.

As regards the storage of these, the frame distance makes little or no difference, the object of narrow spacing being to prevent the building of drone-cells or the rearing of drone-brood; and we believe that, as a rule, if frames were spaced at $1\frac{1}{4}$ inch from centre to centre very little drone-brood would be reared, since that distance does not admit of a sufficient lengthening of cells for rearing drones. It is true that the cells of one comb might be cut away, down to the septum, and those of the other comb, opposite, might be lengthened sufficiently for the purpose of drone-rearing, and this would doubtless occur at times when an extreme desire for drones existed, but not, we think, as a rule.

WORKING FOR COMB HEATHER HONEY.

Adverting to a query sent by a correspondent lately, I have thought this a fitting opportunity to write a short article on the above subject. In order that your readers may understand fully, let me here quote the above-mentioned query *in toto*, viz., 'There being no sale for extracted honey here, I beg to ask you for instruction how to get *the largest possible amount of heather honey in sections without extracting* from both stocks and swarms? The latter usually come off here in July, giving treatment of swarms till the heather comes into bloom.' Scotchmen know well how highly important it is that they should make the most of the heather crop, seeing that the price of honey has fallen about one-third during the past six years. But this has not been the rule with heather honey. In even a

plentiful season 1*s.* 4*d.* to 2*s.* per lb. can be got retail for the genuine article.

In reply to above heading, the first and most important point is, to have the bees strong and ready for work at the proper season. The requisites of a strong stock, fit to take advantage of the heather are, (1), a hive covering at least ten frames of hatching brood in all stages; (2), a young prolific queen; (3), a supply of drawn-out sections on hand; (4), a suitable hive for the heather. Let me consider these four points in detail. (1.) The heather, as a rule, comes into bloom about the first of August. Swarms issuing in July are rather late to be up to full working strength, consequently they must be strengthened at the expense of the old stock. It is the swarm of the current year—not the parent stock—that gives the best return of honey. An easy plan, and one that I have practised indefinitely, is to remove the old stock that swarms to another part of the apiary, and place the swarm on the stand of the latter. This strengthens the new swarm greatly, and is a simple method of preventing weak casts from coming off later. A few combs of hatching brood taken from the stock that has swarmed, and given to the swarm, will bring it up to full working strength in a short time. Another plan may be adopted in the case of late swarms, by uniting two together, and also giving a few frames of hatching brood as before stated. The non-swarming system, I believe, gives the best results in the production of heather honey. By working the stock for extracting up to the middle of July, and allowing the queen full scope for brood-raising, at this time it will be covering at least two body-boxes, or twenty frames. Previous to taking to the heather, the upper body-box can be removed, and crates of drawn out-sections substituted. In our correspondent's case, I would work on the non-swarming system, and instead of piling on boxes of additional frames, would employ the bees at drawing out crates of sections. By giving first one crate, then, after this is well started, a second, and so on, in a short time a lot of sections can be drawn out. Before going to the heather, these sections could be passed through the extractor, and returned to the hive. (2.) A young prolific queen. In all well-managed apiaries, the ages of queens are kept, and unless the queen has been overworked and old, I would not think of exchanging indiscriminately at this season. Casts and old stocks that have swarmed contain young queens that may be utilised at a later date. (3.) A supply of worked-out sections. This can easily be accomplished by adopting the non-swarming method, and, as above stated, pile on section crates according to the strength of the colony. Sections left over from the previous season, cleaned out by the bees, and well kept, come in here very handy. They are better now than if used for the clover honey crop. (4.) A suitable hive for the heather. This is of more importance than many seem to think, but the times indicate that we are approaching this ideal hive. A light, handy, cheap hive, on the tiering-up principle, is imperative. When the bees are at the heather, and working in the supers, if a few cold nights, as usually happens as this season, come, the bees desert the supers, and can hardly be induced to take to them afterwards. In some measure this is prevented when the surplus storage is in the most natural place, above the brood-nest. The heat ascending keeps all warm if plenty of packing is used. Ventilation should alone be provided for from the doorway at this season. The Stewarton hive is among the best for the taking of comb heather honey in quantities. In conclusion, I believe that more comb honey can be taken at the heather in supers than in sections, and of a better quality. The objectionable midrib, so very often complained of in sections, is not, as a rule, to be found in supers. Of course the bee-keeper must study the demands of his customers, and work accordingly.—W. McNally.

BRITISH BEE-KEEPERS' ASSOCIATION.

A meeting of the Committee was held at 105 Jermyn Street on Tuesday, 16th inst. Present—Hon. and Rev. H. Bligh (in the chair), Capt. Bush, Capt. Campbell, Rev. R. Errington, Rev. F. T. Scott, H. Jonas, Jesse Garratt, Dr. Rayner (*ex officio*), and the Secretary. Letters were read from the Rev. J. L. Seager, Rev. F. S. Sclater, Rev. Geo. Raynor, Rev. Dr. Bartrum, Mr. McClure, and the Treasurer, regretting their inability to be present. Dr. Rayner, of Uxbridge, was approved as the *ex-officio* representative of the Middlesex Association.

The minutes of the last Committee meeting were read and confirmed. The statement of accounts for the previous month having been considered and approved, the Secretary was instructed to make an early application for the outstanding subscriptions.

The Exhibitions Sub-committee presented their report relating to the Windsor Exhibition. The several recommendations of the Sub-committee were considered, and, after some discussion, approved and adopted.

A Conference of members of the Association was held at 4.45 p.m., in the offices of the R.S.P.C.A., 105 Jermyn Street, for the purpose of taking into consideration the new Railway Rates under the Railway and Canal Traffic Act, 1888. Among the assembled company were the Hon. and Rev. Henry Bligh, Captain Bush, R.N., Captain Campbell, Mr. Jonas, Mr. Sambels, Mr. Blow, Mr. Garratt, the Rev. F. T. Scott, and Mr. Neighbour.

The Hon. and Rev. Mr. Bligh presided, and briefly opened the proceedings. He said that the Committee of the B.B.K.A. had been under the impression that it would be necessary for them to take some action in the matter of the proposed increase of railway rates before the 11th; and they had resolved to make an appeal to the authorities on behalf of the B.B.K.A. against such alteration; but judging that the time within which the appeal must be lodged had been extended, the Committee thought it would be a good plan to confer with the bee-keeping world, who were more than any one interested in the matter, and to ask for any suggestions or advice as to the best method of procedure. In pursuance therewith the present meeting had been called, and he invited an expression of opinion on the subject before them.

Mr. Blow thought it was necessary for the Association to do something in regard to the new rates. In his own county of Herts they had been doing a good deal towards securing a modification thereof. About a month ago the traders and agriculturists had formed a strong society called the Herts Traders and Agriculturists' Railway Rates Defence Association, and a committee was appointed to compare the different classifications, and see how the new rates differed from the old ones. The result of their inquiry showed that the new rates were very much higher than the old ones when the terminal charges were added, but nearly the same when the terminals were omitted. Three or four years ago wooden hives were not classified, but sent as joinery. Straw hives, the only hives noted, were placed in Class 4. Last year the railway authorities removed wood bee-hives from the joinery class, and raised them into Class 4. That he looked upon as unjust, because wooden hives were practically joinery, and the risk of breakage was not more than that attending the transmission of ordinary joinery. Joinery had, however, now been abolished; for it had been altogether omitted from the list, whether intentionally or not he did not know. It used to be under Class 3. With regard to wax, paraffin wax was placed in Class 1, Japan wax in Class 2, and beeswax in Class 3. That was extraordinary, because they were almost identically the same, and neither more nor less damageable than the other. All should be placed under Class 2. He did not know what alterations had been

made with regard to honey. There had been many alterations in the new rules affecting classification, but the actual rates per ton per mile did not differ much from the old rates. The principal thing to protest against was the terminal charges, which often equalled the total of the ordinary charges. The rate per ton per mile should be inclusive of all charges. The terminals were most oppressive, more especially when the mileage was a short one. The railways had for years sought to make them legal. In one noted case involving those charges, owing to some legal difficulty, the matter could not be carried to a higher Court, or the Railway and Canal Traders' Defence Association would have been prepared to take the necessary action. Thus the railway company was left victorious for the time being. He thought it would be a good thing for the B.B.K.A. to become affiliated to the Association referred to. He was of opinion that comb honey must come under a different class to extracted honey in bulk. It was only fair that the former, considering the risks attending its conveyance, should be placed under Class 4, and the latter under Class 2. In reference to a suggestion from the secretary he thought it would not be advisable to claim three different classes for honey; they would be defeating their own ends by asking too much. In Hertfordshire they took great exception to the 'small parcels' rules. Under the last classification any weight under a quarter of a ton came under the definition of a 'small parcel,' for which the railway companies were entitled to make 'any reasonable charge;' which meant that bee-appliance makers and bee-keepers were entirely in the hands of the railway authorities, who claimed any sum they pleased.

Mr. Jonas said that under the North Western Railway regulations, bee-hives were placed under Class 4, and charged 4*d.* per ton per mile for the first twenty miles, and for a quarter of a ton and less, double that rate. Passenger train charges were 2*d.* per lb., with a minimum charge of 9*d.*

Mr. Blow explained that classification only applied to goods, and not passenger trains. The terminal charges comprised office charges, and charges for shunting, &c.; in fact, the whole system was like a shop-keeper compelling a purchaser to pay for entering his shop, for the paper used in packing up a parcel, and the time of the salesman, as well as for the article itself. It often occurred in the case of short distances that the terminal charges exceeded the cost of carriage. He thought it was quite fair that railway companies should be paid at a higher rate for small parcels, which required extra care and trouble, but the amount of charge should not be left entirely to their discretion.

The secretary stated that under the new regulations the cost of transmitting 24 lbs. of honey twenty miles would be 3*s.* 4*d.*, as against 6*d.*, the old charge.

Mr. Jonas suggested that the B.B.K.A. should put itself in communication with the Railway Rates Defence Association, to which Mr. Blow had referred; and he thought it would be well for all the County Associations to make an appeal to the Board of Trade in concert with the parent body, which must be done before the 3rd June. The fatal rule was that all parcels under a quarter of a ton were classed as 'small parcels.'

Mr. Blow thought that the 'small parcel' limitation should be 100 or 112 lbs. and under.

The Chairman suggested the appointment of a sub-committee to consider the whole question, and report their views to the General Committee.

Mr. Sambels said he thought it was pretty clear from the proceedings of that evening that if the present rates and terminal charges were persisted in, bee-keeping as an industry would be entirely crippled, because there would be no possibility of forwarding honey and appliances to shows except at prohibitive prices. He believed, therefore, the best course the Association could take would be to appoint a representative to appear before the Board of Trade, in order to state the views of the bee-keeping world. This course would not prevent County Associations from sending representatives or petitions. He did not think it was desirable that the B. B. K. A. should throw in its lot with the agriculturists and horticulturists who would address the Board, because in that way the bee-keeping interest would be lost sight of. He thought the present was a good opportunity of making their favourite industry a little better known. The public all over the country had little idea of its magnitude. He then moved a resolution, which, after considerable discussion, was seconded by Mr. Garratt, put to the meeting, and agreed to unanimously in the following form:—'That the B. B. K. A. be represented at the Board of Trade to protest against the proposed classification and charges for honey, wax, and bee-keeping appliances, and also the charges to be made for "small parcels," as bearing most injuriously upon the rising and struggling industry of bee-keeping.'

Mr. Hooker feared there would be a difficulty in obtaining any statistics to prove to the Board of Trade authorities that bee-keeping was a large and growing industry.

The Chairman, Mr. Jonas, and Mr. Sambels thought that the County Associations should be communicated with as early as possible and urged to work on the same lines with the B. B. K. A., especially as regarded classification.

Mr. Blow recommended that the Association should adopt the following programme of operations in regard to the new Railway Rates, and instruct their representative to urge the same upon the consideration of the Board of Trade. The classification should be—

Honey in comb and bottle	Class 4
Honey in bulk	,, 2
Beeswax	,, 2
Straw bee-hives	,, 4
Wooden bee-hives	,, 3
Joinery to be reinstated in schedule under	,, 3

Terminals to be opposed as separate charges, the rates per ton per mile to be inclusive. The proposed weight of 'small parcels' to be lowered from 500 lbs. to 100 lbs., and the charges proposed to be made thereon to be defined with exactitude.

The Chairman moved and Mr. Sambels seconded,—'That a Sub-committee be appointed to consider the new railway rates and their effects on bee-keeping as an industry, and be directed to communicate its recommendations to the General Committee Meeting to be held in five weeks' time.'

The resolution was carried unanimously, and it was afterwards agreed that the Sub-committee consist of Mr. Blow, Mr. Hooker, and Mr. Jonas.

Mr. Hooker moved and Mr. Blow seconded a vote of thanks to the Chairman, which closed the proceedings.

BEE-KEEPERS' VOCABULARY;

Or, Glossary of Technical and Scientific Words used in Works upon Bee-keeping.

Celestial dew. (*L. cœlestis*, fr. *cœlum*, heaven, and *Sax. deaw*, dew.)—Nectar, called so by ancient writers.

Cellar. *n.* (*L. cellarium.*)—A room under a house, or other building, used by bee-keepers as a repository for hives in winter. In America where the climate is extremely cold in winter, such cellars are used for wintering bees, and are kept at a temperature of from 38° to 50° F.

Cells. *n. pl.* (*L. cella*, prob. fr. *celo*, I hide.)—The small cavities, or hollow places, of the honey-comb, in

which the bees store honey and pollen, and raise their young. Cells are called royal, worker, drone, honey, transition, and attachment, according to their shape and the purpose for which they are constructed; the membranous parts of the wings divided by the nervures.

Centre-hiving.—Formerly a method of storifying by introducing an empty box between two stocked boxes was called centre-hiving.

Centrifugal. *a.* (*L. centrum*, centre, and *fugio*, I fly from.)—Flying from the centre.

Cephalic-ganglion. (*Gr. kephal'ikos*, fr. *kephalè*, the head, and *ganglion*, nerve knot.)—The nerve mass in the head; the brain; supra-œsophageal ganglion.

Cephalization.—The gradual concentration during pupahood of nerve matter in the head, with the development of which are associated strength, activity, intelligence, and the power of appreciating the various senses. Subserviency of structure to head domination (Birt).

Cephens. *n. pl.* (*Gr. kephen*, a drone bee.)—Drone chrysalides or brood in the cells when they have the shape of bees (Arch.) Used by Butler, Gedde, and other writers.

Cephen seedes.—Used by ancient writers for eggs which produce drones.

Cepten seeds.—The eggs which produce drones were so called by Gedde.

Cera japonica.—A vegetable wax obtained from the seeds of *Rhus succedanea* (red lac shumach), a plant growing in Japan and China, and now cultivated in India. It is used as an adulterant of beeswax. Its melting point varies, like that of most vegetable waxes, according to its age, and is between about 108° and 131° F.

Ceresin.—A mineral wax found on the western coast of the Caspian Sea, in Galicia, Roumania, and other places in the neighbourhood of petroleum springs. It melts between about 136½° and 212° F., and is largely used to adulterate beeswax. Also called *ozokerit; earth-wax.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 2nd page of Advertisements.)*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

HIVE FOR ALL CLASSES—ANOTHER TRIUMPH FOR THE *B. B. J.*, &c., &c.

[2061.] This is the time of year when very many are debating in their own minds as to the kind of hive they will use this summer, so that instead of writing a letter to the *B. B. J.* in the autumn, as I generally do (I only trouble you with one about once a year), I will give you my further experience of single-wall hives. To sum them up briefly, 'The more I use them the more I like them,' and I have not now such a thing as a double-wall among my nineteen stocks. What is the use of recommending cottagers' inverted skeps and other makeshifts when you can get *the best* results from a half-inch box, and what is the use of rich people buying lumbersome hives when light ones will answer every purpose? I have used them for years (since 1877) alongside expensive double-walled hives, and if anything I have found bees winter better in the single-walled hives. All you require is to have two sides of your box three-eighths of an inch lower than the others, and if you use *strong* nails you will not find your boxes twist in the least in lifting them about when heavy.

The ends of the frames (broad-shouldered for preference) will extend over the sides, but even when storyfied are quite protected by Simmins' covers, and I have found frames that have been so used for years are not the least the worse.

Try these hives this summer, and I venture to think there will be a great many second-hand, big, unwieldy hives in the market next year. The most useful size is sixteen inches long, to take eleven frames if required. Use dummies, with one seven-sixteenths inch width of ends, the same as the frames (you can put broad shoulders to them if you like), so as to fill up all gaps when using a smaller number of frames, but beware of giving too much space between the side comb and the dummy, or you will have all kinds of comb built between. Do not, therefore, fix your dummy in the middle of its own top-bar, but near the edge, so as to give the usual quarter inch space only. The dummy will then hang if required, when removed to the side of hive by its own top-bar, and will allow any amount of room for manipulating. I have wintered eighteen frame-hives and two skeps, bringing all through alive and strong. One of the frame-hives, however, was queenless, so I united it to its neighbour. If any Yorkshire bee-keepers would care to look over my hives and report to the *B. B. J.* I shall be most happy to entertain them, and I think also that with further independent testimony as to the virtues of light hives we should in time see nothing else used and the heavy double-walls be as much a thing of the past as the invertible craze.

I have advocated this for years, and am glad to find I am supported by such a high authority as Mr. Simmins. All I ask of those who try these hives is to confine the bees on two sides, with dummies in winter, to not more than seven frames, and contract the entrance to about one inch, using a porous quilt. I never use chaff or cork packing in any shape, or winter passages, and never had such a thing as a stock starved with either cold or not being able through cold to get to their stores. If you keep bees to a small space and do not have a wide entrance they will keep themselves warm and the whole place dry, and you will never have either dysentery or chilled brood in your apiary.

This is my experience, and if others take to it they will find it much simplifies bee-keeping. Of course there are some people who never will learn to keep bees, and I came upon two of that class last year. The first of these declined my offer of the loan of the *B. B. J.*, saying he could not be bothered with reading the subject. Going into his garden one day, a year last May, I found the whole place alive with bees, and having asked 'What on earth was the matter?' was told that the bees (fourteen hives) had just been moved to the other end of the garden (about eighty yards), and on my saying that quantities would never find their way back to the hives was told that they must be very stupid things if they couldn't.

Going into the same garden about *a week or ten days* afterwards I found the same commotion, and on again inquiring the reason was told, 'Oh, you said it was a bad thing to move bees about, *so we have just moved them back again!*' 1887 was a good year about here, and he got about twenty pounds of honey from all his bees.

The other individual knew a great deal about bees (?), and when I asked him last year if he took in the *B. B. J.* he said, 'No, I think now't o't *Journal*.'

Last week his father asked me if I could account for his son having only five hives alive out of twenty-three,

and I immediately said, 'Yes, because your son thinks he knows more about bees than anyone else, and is too conceited to read the *B. B. J.*' His father, a gamekeeper, grinned, and I saw he had had some sort of suspicion himself how the land lay.

In conclusion, I must say it has just dawned on me that I find I owe you and all your readers an apology for giving you such a long yarn. I shall be happy to answer any questions as to my hives, &c.—ARTHUR J. H. WOOD, *Bellwood, Ripon.*

WHEN TO PUT ON SECTIONS, ETC.

[2062.] When the question as to when to put on surplus arrangements comes up for consideration, the conditions attendant upon locality and honey sources must be first noted. Nearly all my honey is obtained from white clover, and the bulk of it is usually gathered in June. I can only write for my locality—let him whose chief source of supply is basswood write for his.

Clover heads may often be seen as early as the fifth of May, and the meadows will be white with blossoms two months or more before the honey flow commences. As a rule, clover here blossoms profusely about the 20th to the 25th of May, and between the 5th and 8th of June my strongest colonies will commence work in surplus boxes. The first flush of the honey flow arouses the instinct to swarm. It is thus that this instinct can be easiest diverted into a more profitable channel. Then is the time to put on sections. But only those of sufficient strength are disposed either to swarm or to go to work outside of the brood-clusters, and nothing is ever gained by putting on sections before they reach that point. No matter if they do fill up the cells from which bees are hatching to some extent. When they do go above, the younger bees, which do the work in the sections, will empty these cells, which are not apt to be sealed, and carry the honey up with them. In my climate I find it impossible to get all stocks up to the proper pitch of strength by June 5th, but one after another the most of them reach it during the next ten days. I have never known a colony, except a new swarm, to be ready to go above until the bees go to clustering out in front in the heat of the day, and not always then. But if you begin with those that come out the heaviest and examine them, we can tell if they are approaching near to the point of readiness. If there is newly sealed honey along the top-bars and considerable fresh white brace comb above them, put on the sections. They are never ready before these signs appear and quite extensively too.

Whether new swarms are hived in full or contracted brood-chambers, on combs, foundation or empty frames, I strongly advise putting on surplus arrangements at the start. They will work above and below at the same time and will build less drone-comb below, and the apiarist will get more honey. In case a full brood-chamber is used, a queen-excluder may not be needed; but not having tried it I cannot speak positively on that point.

When to remove Sections.—As soon as they are finished. It may be better to have the row of cells around the edge of the section sealed over, but it is by no means necessary.

When wide frames are used and empty ones are added to the sides, as the bees want room, those inside may be finished more thoroughly without becoming more noticeably travel-stained. The same might be said of the middle sections of the upper super when tiering-up is practised. But bees are slow to seal up these outside cells, and I think it better not to wait for this. Whatever you do, *remove your section honey while yet in its virgin whiteness. I want to emphasise that thought emphatically*, if you please. I know it is argued that honey improves in flavour when left on some time to be ripened by the bees; but I have proven the contrary to my satisfaction, as I will show farther on. And if the best flavour can be secured at the same time, it is certainly better to take off the honey as soon as possible, for both the cappings and the liquid itself become darker the longer it is left on the hive. It is conceded that, other things being equal, the prettiest honey sells the best.

Never leave unfinished sections on the hive after the clover harvest is over, waiting for a later flow to fill them out. When honey fails gradually, the inside sections will be largely sealed over. But, sometimes, the flow will cease in a day's time. In either case when the time comes that little or nothing is done, it does not pay to leave sections on the hive.

During the long dearth the bees will daub the foundation, the walls of the sections, and the edges of unsealed cells, with propolis. Such sections are spoiled for ever getting a first-class article of honey. Better take them off and put them back later in case of a honey flow.

To get Bees out of Sections.—In the midst of the honey season it is most convenient to take off honey while bees are flying. More bees are in the field between nine and twelve o'clock than in any part of the day, and that is the best time to take off sections if other things will permit. When you open the hive, drive the bees down with smoke if your super will allow it. Take off the super or frame and give it a number of quick jarring shakes; smoke a little and shake again. Leave the super or frames against the hive or put them on top of some neighbouring hive. Go to another hive and proceed as before. If conditions are most favourable quite a number can be treated thus, and by the time you get around to the first one the bees will be nearly or quite all gone, and the honey can be carried to the honey-house. If robbers begin to bother—watch—not so much can be taken off at once. In that case I take my plunder to the honey-house door, remove the sections, brush off the bees if any remain, and carry them in. If a few bees get into the honey-house they will seek the window. I simply lower the upper sash and raise the lower for a minute, when nearly all will get out.

In case honey has failed, begin quite early in the morning and remove a few supers as directed above. More bees will remain in the boxes of course. The best method then is to carry the honey into the shop, or screen-house, if you have one. I take out the sections, brush off the bees, carry them into the honey-house, darken the window and open the door. By the time the bees begin to be pretty well aroused I quit and resume operations in the evening or next morning.

The best place to keep Honey till sold.—I think that my style of honey-house cannot be excelled for keeping honey until freezing weather. It is the cheapest I could put up to be tight and weather-proof. It is a single-walled room, 12×12 feet, and eight feet high to the eaves, built of eight-inch flooring, covered with two coats of red paint. There is a window in the south side, and with the door shut and the summer's sun pouring in through that window, the heat is *hot* as you may imagine. Into this I carry my honey in supers or on board, hive covers, &c., and pile it up. At my leisure I pack it away in boxes or empty hives in which to fumigate it and keep it from the wax-moth, &c. Here, in this hot, almost air-tight room, honey ripens better than on the hive. Now, I know that many prominent bee-keepers dispute this. But, after having my attention accidentally called to the matter in former years, in 1887 I made a, to me, convincing test. Nearly all my crop was gathered that year in about ten days in June, the flow stopping pretty abruptly. I immediately took off the most of it, finished and unfinished, and stored it in the honey-house. It certainly had had no time to ripen on the hives. In September, I took off the rest. I wish that opponents of my view could have eaten at my table a few times. All through the winter the difference was perceptible. No

matter whether sealed over or not, that taken off early was among the thickest, whitest, richest-flavoured honey I ever raised or tasted. That taken off later was much thinner and lacked the ravishing flavour of the former. I challenge our readers to try it.

A caution here. Leave at least a six-inch space between the honey and wall or floor. That packed within that distance sometimes sours, always becomes watery and rancid.—Geo. F. Robbins, *Mechanicsburg, Illinois.*

BEE-KEEPING FOR COTTAGERS.

II.

[2063.] The next bee we notice is the *drone*. It is the male bee. Drones are easily known, as they are much longer and bigger than the worker-bees, and bigger than, though not as long as, the queen. When flying drones make a much louder hum than the worker-bees. Drones are only found in the hive from about May to August. As the duty of the queen is solely to lay eggs, so the drones have one duty, and that is, to fertilise, or mate with, the young queens.

Drone (male).

Bee-keepers care very little about drones, and those who keep their bees in bar-frame hives do all they can to stop too many being reared. As there are generally a few hundreds of drones in a hive it may be asked, 'Why so many when so few may be required?' The mating of queen and drone takes place in the air, and it seems that the drones are numerous in order that the queen may more easily find a mate. The mating of brothers and sisters is also more likely to be prevented when many of the drones flying about belong to other hives, and, it may be, other apiaries.

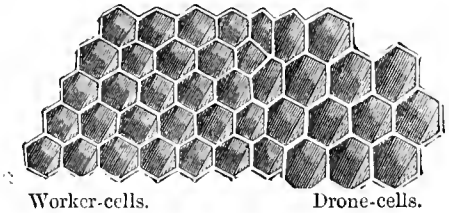
The drone, which mates with the queen, is killed by the act of mating, and the queen is known to have met a drone if on her return she has joined to her the organs of the drone.

The drones are driven out of the hive by the bees to perish as soon as the honey begins to come in slowly; and often in the middle of summer, when the weather is bad and food scarce, the drones are killed as they can best be spared.

If we find drones in a hive in the autumn after all belonging to other stocks have been destroyed, it is almost certain to be queenless.

The *worker* is the smallest of the three kinds of bees. There are generally several thousands in a hive, and the bee-keeper who wishes for the most profit will try to get as many as possible in the hive by the time of the honey flow. Of this we shall learn more in another article. The worker is usually called a *neuter;* that means, that it is neither male nor female. The term neuter is not quite correct, as the worker is really a female, but by being reared in the small or worker-cells her organs for egg-laying are not properly formed. The duty of the worker is to feed the grubs, gather honey, pollen, and propolis, make wax, and with it build the combs and cap the cells; in fact, all the work in the hive is done by the *workers.*

Worker (neuter).



Worker-cells. Drone-cells.

We will now try and follow the egg from the time it is laid to the time when the bee eats its way out of the cell.

The egg, which is very small, is like other eggs in having white and yolk. It is placed by the queen at the bottom of the cell, to which it is fastened by means of a gummy matter which covers it.

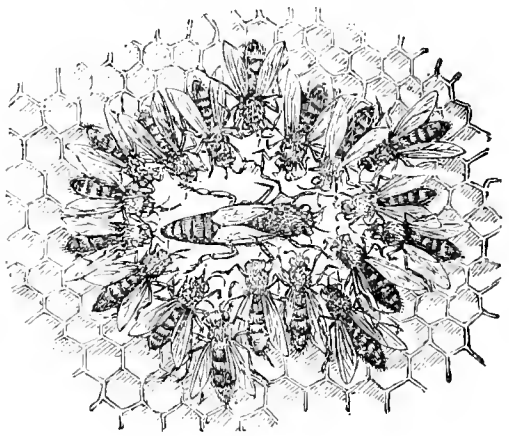
The heat in the hive hatches the egg in three days, and out of it comes what is called a *grub,* or *larva,* or *maggot.*

The tiny white grub is now fed by the worker-bees, with very thin food prepared in their bodies from honey and pollen. A great quantity of this food, or bee-pap, is given, so that the grub actually floats in it. This food is taken by the grub very rapidly, not only by its mouth, but also through its skin, and in five days it is so large that it nearly fills the cell. It is then (eight days from the time the egg is laid) imprisoned by the bees, who place a cap or covering over the mouth of the cell. This cap is made of wax and pollen, so that it is not air-tight. The grub, when imprisoned, commences to spin around itself a silky covering called a cocoon. From the time the cell is capped various changes take place inside, and on the twenty-first day from the laying of the egg the perfect bee eats its way out of the cell. The queen and drone pass through the same stages, although each stage does not last the same time, the queen eating its way out of the cell on the sixteenth, and the drone on the twenty-fifth day.

Returning to the worker: when it leaves the cell it has a whitish, downy appearance, but within twenty-four hours we shall see it busy attending to the wants of the grubs. For the first two weeks of its life it is called a nurse-bee, because its duty is then chiefly to feed the grubs. Afterwards it commences to gather honey, pollen, and propolis, and takes part in all the other work of the hive.

The workers do not live long; their length of life depends upon the amount of work they do. Those, for example, which commence their life in the middle of May will probably not be alive in the middle of July. Others leaving the cells at less busy times live longer; and those leaving the cells in September and October may be seen the following spring.

The worker-bees have one more and very important duty—it is to feed the queen. If we examine a stock of bees in a bar-frame hive we may be able at almost any time in the summer to find the queen on the combs by noticing the number of bees that are around her, as shown in the illustration below. These bees are around the queen to be ready to feed her with digested food; and this is a duty always performed by the nurse-bees during that part of the year when the queen is laying those thousands of eggs which are to produce bees to strengthen the stock, and in course of time assist in starting a fresh colony by swarming.—C. N. White, *Somersham, Hunts.*



MY OWN EXPERIENCE.

[2064.] After hearing a glowing though rather confusing description of moveable frames I determined to try some as an experiment. Having a large family to maintain, and no spare cash, I got a couple of stout boxes, and went to work to convert them into frame-hives; and as I did not know more about driving bees than I did about driving the engines of an ocean steamer, I had to wait until I could get swarms to put into them. This I had the pleasure of doing at last, and then I thought my fortune was nearly made; I could almost fancy I heard the gold chinking in my pocket as the result of my cleverness, and I began to lift my head and look rather disdainfully at those 'common' skeps in my neighbour's garden. But pride is bound to have a fall, and that is what mine had, and I also found, to my sorrow, that honeycomb, if not *bound* to fall, is very liable to do so if built out of due proportions, and that is what mine did. Overlooking the fact that honeycomb is not so strong as cast-iron, I had made my frames to size of boxes, which were about 13 inches square, width, length, and depth, and the bees (who would have known better if left to their own devices), supposing the frames were put there to fill, and wishing to do their duty irrespective of consequences, filled them accordingly; and as I had put the frames a good distance apart, and bees, like Nature, abhor a vacuum, they made the combs thick, and the consequence was that, when I moved the frame, which, as an 'advanced' bee-master, I was bound to do, down came the whole slab of comb, crushing, and drowning, and suffocating the poor bees, and ruining the colony. I had to finish the work of destruction in the best way I could, for after such a terrible disappointment I had no heart for trying to save some of the innocent victims of my ignorance, but I there and then vowed vengeance against all frames and frame advocates, my enthusiasm in the bee line went down to zero; and I can assure you I had but little to say about the management of bees, for a time at least, feeling inclined to resent any pity for my failure, or laughing at my discomfiture.

This massacre of the innocents left me with only two stocks, and I almost wished *they* would die; but as they were not to blame in the matter, they did not see the fun of dying just to please me, and they lived on, for which I am now thankful, for although the golden period is still to come, that dearly-bought experience has been useful, together with other experience which I have secured at a far better price. In 1887 the two stocks which I had gave me a good swarm each, and I took the retrograde step previously determined upon by putting them into boxes without frames, intending to act in future on the 'let-alone' principle in summer and sulphur in autumn; but being in a town about six miles from home one day at the latter part of the summer, I saw some beautiful sections of honey, and questioning the owner, I found that he had four colonies of bees in frame-hives, and that he had already taken 114 such sections from them. This result was too much for me to ignore; my prejudice was completely removed by such a proof of the superiority of frames and sections over skeps and boxes. My aspirations again revived; and having asked permission, which was readily granted, to see his little apiary, and having kindly given me all the information he could, which was not much it is true, as he himself was only a novice, I determined to start afresh with frame-hives. By his advice I got *Modern Bee-keeping*, and set to work again with a will, not, I confess, with such a high *opinion*, but with more *method;* and having the book to guide me I soon made two hives according to the dimensions there given, and then successfully driving my bees as directed, I united them, making two of the four, taking about 30 lbs. of honey, and giving them the rest.

Making the best of circumstances, as bees always do, they soon fixed the combs securely, and I removed the tapes, and giving them syrup, as I thought, sufficient, I packed them up for the winter of '87–'88. That it was a long, trying winter for bees is well known, especially when managed by novices. I found it was *too* trying for some of mine, for although they seemed nicely strong at the early part of February '88, flying freely when opportunity permitted, yet one of my stocks ran short of provisions, and succumbed before the weather allowed me to examine and feed them. Thus I had to start the season of '88 with only *one* stock, but again taking a lesson from my book I fed them well, but gently; and when the hive was full of bees I made an artificial swarm, and soon had two stocks in full swing. But the 'full swing' of last year is pretty well known to all bee-keepers. I made crates and bought 100 sections, which a local dealer kindly let me have for 3*s.* 6*d.* I put a crate of sections on each hive, and the result was that I got two finished sections, which I sent to a bazaar, and another section about half filled. This was my honey harvest for '88—*not much gold yet!* But knowing it was from uncontrollable circumstances I did not lose heart, but set to work to increase my stocks of bees, so as to be ready when the favourable season did arrive. I had the offer of a first and second swarm *gratis*, which had not got a particle of stores, and I walked eight miles to get them. The weight was not at all overpowering, as I found when I got them home and united them that there was not a good colony from the two. However, I put them into a small hive holding about six frames, fed them well, and soon had the pleasure of seeing a nice lot of brood. I also had another lot offered at the same price, which I accepted. This was a large swarm which left the parent stock on the 2nd of August, but as they had not swarmed before I knew the queen was right. I told the owner that probably the old stock was ruined, as there would be no drones about, even if they could raise a new queen; and so it has proved, for he told me the other day that the stock was dead, and seven others beside. He had thirteen or fourteen stocks in skeps, which were standing, some in the bottom of a ditch, some completely hidden in nettles, and with entrances so small that a finger inserted would have completely stopped them up. I strongly advised him to feed them in the autumn, but he did not, and the result is that he has lost more than half of them already, and will in all probability lose most of them. I put that swarm into a large hive which I had made for doubling, and, feeding them freely, they soon had a good quantity of brood and a fair supply of sealed food.

Thus I had four stocks to prepare for winter, for which I used something like fifty pounds of sugar, but having lost one last year through short supplies, I took the precaution of putting some candy over the frames, and a hollow dummy with Demerara sugar by the side of each hive, they are beautifully strong at *present;* and when I peeped in on the 11th of February they had, all of them, a fair supply of sealed food, which I augmented with a piece more candy. I am now awaiting with strong hope and some confidence the bee season of '89; and if not troubling you too much, I may, I hope, give you the result of my further experience when the coming season shall have divulged its secrets and distributed its treasures.—G. H. J.

Echoes from the Hives.

Jersey, April 15th.—The weather has suddenly turned in so cold that bees fetching water at the pan have dropped to the ground numbed. The trees are commencing to come out, such as elms, fruit-trees generally, silver poplars, &c., but the majority of the bees keep at home. For several weeks past large quantities of pollen were brought in. I am very thankful that a near neighbour has a large bed of anemones; I can recommend them for pollen. The loss of bees in skeps I hear has been more than usual here.—JERSEY BEE-KEEPER.

NOTICES TO CORRESPONDENTS & INQUIRERS.

M. F. Paisley.—*Queenlessness.*—We are inclined to think your colony queenless, and advise you to make another careful examination. If queenless, and you do not care to supply a queen, unite it to another colony. If it contains an unfertilised queen six weeks old, she will remain a drone-breeder all her life. Drone brood, produced by an unfertilised queen, is found in compact masses, and generally in drone-cells, if the hive contains any; but that of a fertile worker is more scattered (empty cells intervening between those containing eggs, larvæ, and pupæ), and is generally found in worker-cells, the cell-walls being lengthened, and the cappings raised beyond the normal height. You are to be congratulated on your success in bringing your bees safely through the winter, and in creating an interest in bee-keeping.

Arthur J. H. Wood.—You will find your communication in the present issue. It is not always in an Editor's power to insert letters the same week they are received.

W. H. Ley.—*Unfertilised Queens.*—We should never depend on drones from unfertile queens for breeding purposes. Queens should be fertilised in about five or six days after hatching out.

T. Linter.—*Keeping Carniolans Pure.*—If you have drones of other breeds flying, you cannot depend on the progeny being pure. We should prefer a pure English-bred Carniolan queen.

W. S.—1. *Spare Honey.*—Yes, you may feed it back if not crystallised. 2. *Dusty Combs.*—From your description we should say they are infested with wax-moth. Melt them up. 3. *Extractors,* after being used, should be scalded out and well dried, or they will rust.

W. L. M'Clure and Jersey Bee-keeper.—Be pleased to refer to 'Useful Hints' for replies to your queries.

Raw Hand, John Bull, and others.—Replies postponed till next week.

Business Directory.

HIVES AND OTHER APPLIANCES.

Abbott Bros., Southall, and Merchants' Quay, Dublin
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THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.'

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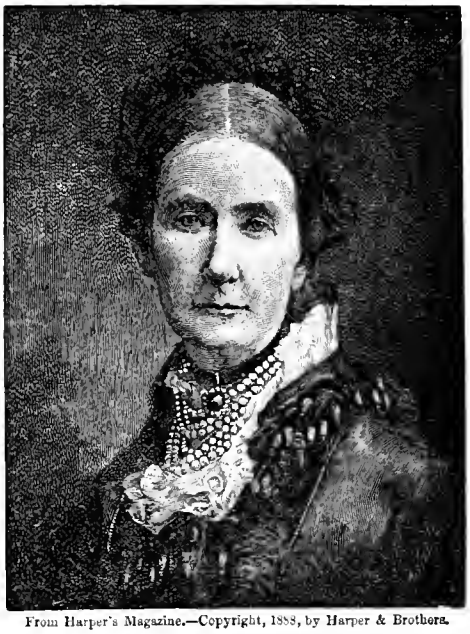
Editorial, Notices, &c.

No. III.—THE BARONESS BURDETT-COUTTS.

We should scarcely be justified in placing the lady whose portrait we give on this page amongst the 'eminent bee-keepers' of the day, but all will readily admit her claim to be considered eminent amongst bee-keepers; for from the time the Baroness Burdett-Coutts came into our midst she has unwearyingly laboured to sustain and develop the bee-keeping industry; and she has most felicitously been designated the 'Queen-bee' of our community. We feel not a little proud that the British Bee-keepers' Association has for its President a lady who has for so many years occupied so unique and prominent a position in the history of the nation.



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BARONESS BURDETT-COUTTS.

The Right Honorable Angela Georgina, Baroness Burdett-Coutts, was born on April 25, 1814. She is the youngest daughter of the late Sir Francis Burdett, Bt., and granddaughter of Mr. Thomas Coutts, founder of the well-known banking-house in the Strand. In 1837 she succeeded to the bulk of the property of Mr. Coutts, through his widow, once the fasciuating Miss Mellon, who died Duchess of St. Albans. The power and responsibility of benefiting her fellow-creatures, thus conferred on her, the Baroness has wisely and conscientiously exercised in carrying out a multitude of projects which have had for their aim the welfare of the world at large.

As a consistent member of the Church of England, her liberality has been on an almost unparalleled scale. Besides her contributions towards building new schools and churches in various parts of the country, Miss Coutts erected and endowed, at a cost of 30,000*l.*, the handsome church of St. Stephen's, Westminster, with its three schools and parsonage, and more recently she has erected another church at Carlisle. Through her energetic munificence the three Colonial Bishoprics of Adelaide, Cape Town, and Columbia, have been endowed at a cost of 50,000*l.*, besides promoting an establishment in South Australia for the benefit of the Aborigines. She also supplied the funds for Sir Henry James' Topographical Survey of Jerusalem; she secured numerous Greek MSS. from the East for the verification of the Sacred Scriptures; and she offered to restore the ancient aqueducts of Solomon to supply Jerusalem with water,—a work, however, which was not carried out.

At home drinking fountains have been provided by her in various parts. The most striking ornament in North-western London is a beautiful temple in Victoria Park enclosing a public fountain. A similar work of art adorns one of the entrances to the Zoological Gardens in Regent's Park; one was erected at Manchester, where, on the occasion of its opening, she received a most enthusiastic reception; and another in the neighbourhood of Columbia Market; and the numerous cattle troughs to be seen in the roadsides about London bear evidence of her thoughtful agency. In the desire to provide and increase the supply of wholesome meat she purchased one of the blackest spots in North-eastern London called Nova Scotia Gardens, and there erected the model dwellings called Columbia Square; and close to it Columbia Market, one of the handsomest architectural ornaments in that part of London.

As one of the great means of benefiting her fellow-countrymen the Baroness has paid great attention to judicious emigration. When some years ago it was found necessary that the starving families of Girvan, Scotland, should seek the means of existence in another country, she advanced large sums for their transmission to Australia. Again, when the famine was raging in the neighbourhood of Skibbereen, Ireland, relief from the same open-handed source was forthcoming, some of the families were assisted in emigration, others were helped by the establishment of a store for food and clothing, and others, by giving them a vessel and fishing-tackle, were enabled to prosecute fishing as a means of livelihood. It would be impossible in a sketch like this to follow the Baroness in all the undertakings that her means have permitted her to carry out. They are of the most diversified nature. We find her assisting Rajah Brooke in improving the condition of the Dyaks in Borneo, and establishing a model farm, by which the riches of that country and the productiveness of the soil have been developed. Again we find her laying out the churchyard of Old St. Pancras as a garden for the surrounding poor, and erecting a sundial as a memorial to those who had formerly been buried there. The Baroness takes great interest in the

Whitelands Training School for Female Teachers; her annual addresses to the young women at the annual distribution of prizes are mostly of practical advice. She has done much good service in promoting higher education, having endowed a professorship at Cambridge for teaching an important branch of physical science. The Baroness was the means of instituting the Turkish Compassionate Fund, by which thousands of the Turkish and Bulgarian peasants were saved from starvation and death. For her services in this matter the Order of the Medjidje was conferred on her by the Sultan.

In June, 1871, Miss Coutts was surprised by the offer of a peerage from Her Majesty, which honour was accepted. Her ladyship received the freedom of the City of London on July 11, 1872, and that of Edinburgh January 15, 1872. Several of the City Companies have conferred on the Baroness their freedom and livery in recognition of her illustrious actions. When on a recent visit to Ireland, where she had organized a fishing-fleet having its head-quarters in Bantry Bay, she was received with the greatest enthusiasm.

The beautiful garden and grounds of her villa at Highgate are the frequent scene of her munificent hospitality; and are constantly thrown open to school children in thousands. In July, 1867, she gave there the largest dinner party on record; two thousand Belgian Volunteers were invited to meet the Prince and Princess of Wales and five hundred other noble and distinguished guests. The large and verdant lawns were made picturesque by gaily decorated tents, in which the whole party dined with the greatest comfort and convenience. The Baroness is a distinguished patroness of artists and literary men, and her hand is ever ready to assist any institution which has for its object the elevation of her sex and the protection of children. Whilst Miss Coutts she established and supported a reformatory, whence a large number of degraded women have passed to the Colonies, where they have had an opportunity of leading a new life. Her attention has been directed to the claims of dumb creatures, and her interest has been abundantly shown by her exertions in their behalf, in the energy and constancy of which no one has surpassed her. Nowhere is the Baroness more conspicuous than when presiding at the various institutions which are held in the rooms of the Royal Society for the Prevention of Cruelty to Animals. We believe that the Baroness laid the foundation-stone of these useful buildings.

The Baroness was married on February 12, 1881, to Mr. William Lehman Bartlett, who obtained the royal license to use the surname of Burdett-Coutts.

The Baroness Burdett-Coutts has proved a faithful friend to bee-keepers. When the Rev. H. R. Peel, in 1878, volunteered to undertake the duties of secretary to the B.B.K.A., his first care was to prevail on her ladyship to accept the Presidentship of the Association. To this she kindly gave her consent, and on many occasions by her well-timed liberality has she removed obstacles to the progress of our bee-keeping industry. We are indebted to her for valuable assistance at the Kilburn Show, for the ability of acquiring for the B.B.K.A. the library collected during the lifetime of Mr. Desborough, and for suggesting, and in a great measure defraying the expense of, the mission of Messrs. Abbott and Carr to spread abroad a knowledge of bee-keeping in Ireland. The Baroness presides with great regularity at the annual meetings of the Association; and we are indebted to her for many wise counsels and practical suggestions. Her ladyship is also President of the Middlesex Bee-keepers' Association.

The Baroness Burdett-Coutts has a clear judgment, a large heart, great facility in speaking in public, and a strong mental constitution which enables her to overtake a large amount of solid work. May she be long spared to employ in the future, as she has done in the past, the talents committed to her trust.

BRITISH BEE-KEEPERS' ASSOCIATION, 1889.

The next Quarterly Conversazione will be held at 105 Jermyn Street, on Wednesday, May 22nd, at six o'clock. Members desirous of introducing subjects for discussion, or to submit improved appliances, are requested to communicate with the Secretary not later than Wednesday, May 15th. County Representatives will meet at 149 Regent Street at four o'clock. The Quarterly Conference of the County Representatives with the Committee of the B.B.K.A. will take place at 105 Jermyn Street at Five o'clock.

THE WINDSOR SHOW.

We are pleased to see that some of the Associations are rising to the occasion of the Windsor Show. The Lancashire and Cheshire B. K. A. have opened a fund on their own account; and we note that the Middlesex B. K. A. have subscribed three guineas towards the show. We trust that such examples will stimulate other county and district associations to do likewise. These bee exhibitions in connexion with the Royal Agricultural Society are full of lessons both to farmers and bee-keepers. The connexion between agriculture and bee-culture is most intimate. The chief lesson to be learned is that it extends the horizon of the farmer, and causes him to see the possibility of the restoration of the position once occupied by the agricultural classes. The depression among farmers still continues. Some farmers with improved implements and more scientific methods, with large holdings, may make farming pay; but the small farmers require every possible additional assistance; bee-keeping, poultry-rearing, dairy-farming, fruit-growing, &c., are all desirable. We allow that bee-keeping and the others may be rightly termed minor industries; but, if rightly managed, it will be found that bee-keeping is not an industry to be despised. It is a desirable employment for a farmer's wife or daughter. Bee-keeping will be found to be a healthy occupation, with a moral and intellectual tendency. Feeling convinced of the great benefits resulting from bee-culture to the farmer and others, we are earnestly desirous that the opportunity afforded by the Windsor Exhibition should not be allowed to slip by unimproved, but that it should bear abundant fruits. The presence of bee-keepers in these large agricultural shows is as a thin wedge which requires being driven in year after year, earnestly and perseveringly. The more bee-keeping is shown to advantage on such occasions the greater attention will be directed to its teachings. Therefore once more do we press on all bee-keepers and all associations to assist the executive in their endeavours to spread far and wide a knowledge of bee-keeping.

THIRTY YEARS AMONG THE BEES.

By Henry Alley.

Queen-Rearing.

(*Continued from page* 16.)

Reasons why the Depth of the Cells should be Reduced.—At this point it is in order to state the reasons why the cells should be made so shallow. When a colony is seized with the swarming fever the first step taken is the construction of queen-cells. If the combs are examined, eggs will be found in large cells (cell cups as they are called). It will be noticed that these cups are very shallow, say about a quarter of an inch deep. If a convenient location for a queen-cell cannot be found on the edge, or at the bottom of the combs, the bees are compelled to cut away several worker-cells in order to get the proper amount of room at the base for the food, and for the foundation for a cell of suitable size in which to rear a queen.

Should the depth of the cells not be reduced as here advised, and as illustrated in figure 4, the bees would be

Fig. 4.

obliged to do it, as, in order to rear a queen, the base of the cell must be enlarged, and if the bees are compelled to do it, but few queen-cells would be made, especially if the comb containing the eggs is an old piece. Instead of queens being reared, worker bees would be produced, notwithstanding the unnatural position of the cells. Thus it will be seen by the little help rendered the bees in this way, that it is a great inducement for them to construct cells from each egg placed in the hive.

How to Destroy the Egg in the Cell.—In order not to have the cells made too near together, the egg in each alternate cell is destroyed. Now this is not a difficult thing to do by any means. I can destroy them as fast as any one can count. It is done in this way: Take the piece of comb containing the eggs to the left

Fig. 5.

hand, keeping those cells upwards that were cut, and insert the 'scratch' end of a common match in each alternate cell, and rapidly twirl it between the thumb and finger. This will effectually destroy the egg. Figure 5 shows the cells and the eggs remaining after such an operation. While the destruction of half of the eggs will give nearly sufficient space for queen-cells, still a little more room is needed, though to one unacquainted with this method of rearing queens, it does not seem possible to obtain it, yet it can be done as follows:—If the row of queen-cells, illustrated in figure 6, is examined, it will be seen that the piece of comb containing the eggs is somewhat curving, or convex in form. By placing it in that position none of the queen-cells when finished will be joined together, though the bees will build a thin partition wall of wax between adjacent cells. Yet when separating them none will be injured if a little care is used in doing the work.

Size of Frame used for Cells.—The comb and cells are the same as are used in the hive in which the breeding queen is kept, the bottom half being removed to give the proper amount of space for the row of queen-cells. When I have used such combs for cell-building, from sixteen to thirty-six were placed in one hive. The latter number is used only when one unusually large colony is taken for queen-rearing. The former number is as many as are needed for an ordinary-sized colony.

While it is quite convenient to use such combs for cell-building, I find that larger frames may be utilised to equally as good advantage. To make room for the cells, pieces of comb three inches long by two inches wide are cut out near the bottom of the frame. Some fifteen or twenty of such combs are kept at hand in our apiary for that special purpose.

How to Fasten the Strips of Comb in Position.—When the strips of comb are prepared and ready to be placed in position, the cells that were *not* cut are dipped in the melted beeswax and rosin, and immediately placed in position as shown in figure 6. The

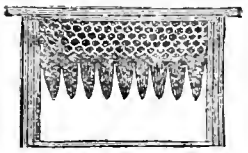

Fig. 6.

middle of the strip of comb should not be pressed down hard, but the ends should, as this will make it still more convex. There is such a thing as overdoing the curving part of it. Each one must use judgment in the matter.

Some Minor Details.—The wax-mixture must not be too hot, nor should the comb be dipped into it too far, as more wax would be used than is necessary. If too much adheres to the comb, it would be likely to enter the cells and destroy the eggs in the cells on the opposite side.

Perhaps I may go into details too much if I say that the frame of comb to which the strip of eggs is to be attached should be inverted to better facilitate the operation. With but slight experience and practice one will soon learn how to do these things as they should be done. It would require a large volume to explain all the minor details connected with bee-keeping.

Releasing the Bees from the Swarm-box.—Having previously prepared the hive as hinted on another page, the frame containing the eggs is placed in the centre (certainly not at the side) of the hive. The latter is then placed on the ground, and all is now ready for the bees. The cover of the swarm-box is removed, and as quickly as possible the bees are turned out upon the frames and on the ground in front of the hive. Nearly all, save the youngest bees, will take wing; and after flying about the location for a few moments, and having discovered that their home is in the same location as before, they quickly return, enter the nucleus and make the best of the situation. The cover of the hive is then placed on and a cage containing a queen is placed over an aperture in the top and covered by anything that will protect the queen from the sun and wet weather. At night the cage is removed, and not even an expert in bee matters could go into the apiary the next morning and point out the colony that had been operated upon.

(*To be continued.*)

Shallow Hives.—Reply to 'C. N. P.,' in article (2036), p. 140, line 6 of second paragraph, read, *full* of the breeding season, instead of *fall*. Mr. Bois will be pleased to give shortly the system of management which he pursues with shallow hives during spring and summer. With respect to the remarks of a writer in (2047), p. 164, his experience is in a reverse ratio, viz., that bees winter as well; that there is an equal or better control over swarming; that colonies can be built up as well and more regularly where a larger number of shallower frames than the standard are used; and that nuclei can be reared and sold cheaper on shallow frames than on deeper ones, and with a better chance of success.

REVIEW OF GERMAN AND FRENCH BEE JOURNALS.

By J. Dennler of Enzheim, Alsace, Lorraine.

1. *W. Vogel, 'Bienenzeitung,' 45th year.*—Number 1 of this journal for the current year commences with a new year's greeting from the veteran bee-master, Dr. Dzierzon, under the heading of 'My congratulations to all true bee-keepers,' which is conseqnently also addressed to the readers of the *British Bee Journal*. Dr. Dzierzon is the oldest and the most trusty and active coutributor to the *Bienenzeitung*, which has now entered upon the 45th year of its existence. It is hardly necessary to say that his are also the most popular articles, as they are thoronghly reliable in regard to the theory and practice of bee-keeping. Although Dr. Dzierzon entered upon his 79th year on January 16th last, his articles are still written in an attractive style, testifying to a vigour of mind which is marvellous. Let us hope that he may remain amongst us for many years to come to the benefit of bee-keepers.

His congratulations for the new year are more particularly addressed to his bee-keepiug friends, although, of course, all others are included, and he calls them happy, because they have chosen for themselves an innocent and healthy occupation opening out a source of pure joy in the contemplation and study of bees in their wonderful economy.

That anyone should express regret at having been engaged in bee-keeping seems incredible and almost beyond belief. A bee-keeper whose occupation is mostly in the open air, and who is continually stimulated by bodily and mental activity, preserves to himself the greatest blessing worth striving for, that is, a healthy mind in a healthy body, or, as the Latin saying is, *Mens sana in corpore sano.*

On page 6, *ff*, of the same number the subject of Bacteria and Vibrionidæ is treated by Mr. Vogel. The order of the schizomycetes is by no means an insignificant one in the system of the fungi, forming several species, classified according to the form and division of the cells. The Vibrionidæ are closely related to the Bacteria, and like them these very minute organisms live in liquids, but are easily distinguished from Bacteria by the peculiar form of their body, which not infrequently assumes quite a spiral shape. According to Dr. Weibel the Vibrionidæ exist in bodies which have been turned into a state of putrefaction by Bacteria, the corrupting organic matter affording them the nutriment suitable to their organization. How marvellous this seems! Vibrionidæ which live in putrefying bodies consnme the matter putrefied by Bacteria, thns destroying by their presence the terrible poison generated by them.

The theory of the Vibrionidæ ought to be of considerable interest to bee-keepers, as these minute organisms undoubtedly make their appearance in the putrefying larvæ of bees. Nature in providing that the noxious products of putrefaction caused by Bacteria shall be consumed by Vibrionidæ has also created a check against the spreading of foul brood. It is doubtless due to the Vibrionidæ that the foul brood matter which emits so offensive a smell becomes finally reduced to a dry crust, adhering to the walls of the cells.

2. *C. F. Gravenhorst, 'Deutsche Illustrierte Bienenzeitung.*—The January number for 1889 contains a biography and portrait of Francis Huber, and communications from L. v. Stachelhausen (Selma, Texas), also from Francis Gravenhorst, concerning the new so-called 'Imperial Hive.' This stock is so arranged as to make it a thoroughly German bee-hive, resembliug the Magazine hives of Christ and Canitz, possessing at the same time some of the characteristics, more or less modified, of the hives of Langstroth, Cowan, Von Berlepsch, aud the tall four-storied Stander, and last, but not least, of the Bogenstülper. It may be used either as a Stülper or Magazine hive, as it is so contrived that not only is it possible to take out any frame separately, but it is as easy to do this from the top of the hive as from the bottom, by turning the hive round. The frames are without projecting ends, being fastened with tacks at the top and bottom. The floor-board is moveable.

3. *'Bienenwirthschaftliches Centralblatt,' Editor Mr. Lehzen, No.* 1, 1889.—Ju an article headed 'Which is the best Beehive?' Mr. N. v. Volken discusses the advantages and disadvantages of different forms of hives, and draws the following conclusion: 'The straw skep used by the bee-keepers of the Heath districts is undoubtedly the usual hive for those who keep their colonies in hives with immoveable combs, while the single hive of two storeys, made of willow wood, three c.m. (1 $\frac{16}{100}$ in.) thick, with entrance on the floor-board, is the very best hive for moveable combs.' No. 3 of the same journal contains an illustrated description of the Alberti hive and an article entitled, 'Notes on Exotic Honey Bees,' written by Professor Dr. Hess, who gives some interesting information on some varieties of Surinam bees (U. Kappler, 1887). *Apis Amalthea* is a black bee with yellowish-coloured wings, and not above nine m.m. ($\frac{360}{100}$ in.) in length. These bees settle in hollow trees, but more frequently in the abandoned nests of termites, storing their honey, which is of excellent taste, in vesicles of black wax. Another variety, probably *Apis pallida* of the same size, is of a yellow colour with green eyes, building nests in the same manner. A further variety, a splendid yellowish green bee, twelve m.m. ($\frac{47}{100}$ in.) in length, gives much trouble to householders. These bees frequently build their nests inside the locks of doors and trunks, which they enter by the keyhole, filling up by degrees the whole space inside the lock with a sweet-scented, pitch-like kind of wax, so that the door can neither be opened nor shut, and the lock has to be taken to pieces to have the conteuts burnt out.

4. *J. Baelz, 'Die Bienenpflege.' (Journal of the Wurtemberg Bee-keepers' Association,* No. 1, 1889.)—In an article on artificial combs Mr. Schweikert complains that the makers of wax-sheets do not always cut them correctly. Such artificial combs are completed by the workers, it is true, but it takes a long time before the qneen makes up her mind to deposit eggs in such cells, and in the following spring the combs are generally nibbled down completely, the worker-bees using the material to construct natural combs, which, however, mostly contain drone-cells. Another disadvantage of the guide-combs not being correctly cut is, that they are very liable to extend in length, as the oblique side walls afford no support to the cells. In properly cut artificial combs one corner should always be at the top as in a natural comb.

5. *Rud. Kern. 'Die Biene und ihre Zucht.' (Journal of the Bee-keepers' Association for Baden,* No. 1, 1889.)—The first number of this journal contains the report of a lecture by Mr. Schöpflin-Länger on the proboscis of the bee, fully illustrated; also an article by Pfarrer A. Hauck on 'The Question of the Position of the Cells.'

6. *L. Krancher, 'Deutscher Bienenfreund' (Saxony),* No. 1, 1889.—The present year is the twenty-fifth or jubilee year of this journal: and in its first article it gives the biography, with portrait, of the Editor, written by his son, Dr. O. Krancher, of Leipzig. With reference to whether preference should be given to single hives or hives constructed to hold more than one colony, Mr. Günther, of Gispersleben, the eminent pupil of Baron von Berlepsch, states that bee-keepers in Thuringia prefer the Manifold hive.

(*To be continued.*)

BEE-KEEPERS' VOCABULARY;

OR, GLOSSARY OF TECHNICAL AND SCIENTIFIC WORDS USED IN WORKS UPON BEE-KEEPING.

Cereus. *a.* (*L. cereus*, fr. *cera*, wax.)—Waxen; wax-like.

Cerge. *n.* (A.N.)—A wax taper; a candle made of wax.

Cerotic acid.—One of the constituents of beeswax, there being from 13 to 16 per cent of cerotic acid in all pure bees wax.

Ceroxylon andicola. (*Gr. keros*, wax, and *xylon*, wood.)—A palm found in New Granada, whose trunk is covered with wax, which has a melting point of 161½° F. The wax is sold as 'vegetable wax,' and is used to adulterate beeswax.

Chaff-box.—A bottomless box, about four inches deep, having a piece of calico tacked on the bottom, and filled with chaff. This is placed on the top of the hive frames instead of the plain quilt.

Chaff cushion.—A cushion loosely filled with chaff, placed on the top of the hive frames, affording warmth and ventilation without draught.

Chaff hive.—A hive with double walls, the space between them being filled with chaff.

Chilled brood.—Brood that has died from cold.

Chin. *n.* (*Sax. cinne.*)—The lower extremity below the mouth; the mentum, to which is attached the ligula, and on each side of this a labial pulpus.

Chitine. *n.* (fr. *Gr. chiton*, a tunic.)—A tough, sometimes horn-like substance of great strength and elasticity, forming the external framework of the insect's body—as well as the internal braces, tendons, and membranes. By this the muscles attached internally are supported, the internal organs enclosed and protected, the sensory organs sheathed, and the working apparatus strengthened.

Chloroform. *n.*—A volatile, thin fluid which produces temporary insensibility. Sometimes used for stupefying bees.

Chorion. *n.* (*Gr. korion*, skin. *L. corium.*)—The netted membrane which covers the egg.

Chrysalid, Chrysalis. *n. Plur. Chrysalides.* (*Gr. chrysallis*, fr. *chrysos*, gold.)—The peculiar pupa form, often golden-coloured, which some insects assume before they arrive at their winged state; the *pupa*. See *Aurelia*.

Chyle. *n.* (*Gr. chulos*, juice, humour.)—A white milky fluid separated from the aliments by means of digestion, and passing into the blood as the means of nutrition; digested food; the food shown by Schönfeldt to be given to the larvæ, with probably the addition of a glandular secretion.

Chyle stomach.—The widened portion of the alimentary canal situated between the honey stomach and the small intestine. In it the aliments are converted into nutriment by the action of the gastric juice secreted in glands in its walls.

Chyme. *n.* (*Gr. chymos*, juicy pulp.)—That particular modification which food assumes after it has undergone the action of the stomach.

Cierges. *n. pl.* (A.N.)—Wax-tapers; candles of wax carried in processions of the Roman and Greek churches.

Circulation of blood. (*M. L. circulatio.*)—See *Blood circulation*.

ASSOCIATIONS.

IRISH BEEKEEPERS' ASSOCIATION.

The annual general meeting was held in Dr. Traill's class-room, Trinity College, Dublin, on April 25th, Mr. J. K. Millner presiding.

The report for the year 1888 (a notice of which appeared in the *Bee Journal* for April 18th) and the balance-sheet were adopted, with a vote of thanks to the auditors.

On the motion of Mr. Chenevix, the honorary secretary, seconded by Mr. Read, a vote of thanks was unanimously passed to Dr. Traill for the gratuitous use of his rooms for committee and other meetings, by which much expense is saved to the Association.

The President, Lord Ardilaun, and the Vice-Presidents, Treasurer, and Secretary were re-elected by a unanimous vote. Mr. Millner and Mr. Read were appointed auditors, and Rev. R. Smyth and Mr. Read scrutineers of the voting papers for the election of the new committee.

Mr. Read moved—'That at the end of Rule 3 the following words be inserted: "The Committee (see Rule 6) shall have power to refuse a subscription or donation."' He pointed out that at present the Committee have no power to prevent any person, who chooses to send a subscription, from being a member of the Association, and that in an extreme case the possession of such a power might be desirable.'

Mr. Sproull seconded the motion, which, after some discussion, was passed without opposition.

The scrutiny of the voting papers resulted in the election of the following committee for the year 1889-90: Mr. Gillies, Dr. Traill, Rev. P. Kavanagh, Mr. Read, Mr. Millner, Dr. Knight, Rev. R. Seymour, Dr. O. Farrell, Miss F. W. Currey, Miss L'Estrange, Rev. Canon Sadleir, Mr. T. G. Barlow, Mr. E. Werkin, Mr. Croasdaile, and Mr. Barnes.

The President and the other officers of the Association were amongst those who received most votes, but having been re-elected to their offices they became *ex-officio* members of committee, and are not therefore included in the above list.

A vote of thanks was unanimously passed to the Press for the great services they have kindly rendered to the Association by the insertion of reports.

ROYAL DUBLIN SOCIETY AND IRISH BEE-KEEPERS' ASSOCIATION.

At the suggestion of the Irish Bee-keepers' Association, who also made a pecuniary contribution towards the expenses, the Royal Dublin Society awarded prizes for hives and bee appliances at their spring Show held at at Ball's Bridge, Dublin, on April 23rd and three following days. The exhibits were mainly from Irish hive-makers, especially from Messrs. Edmondson Bros., and Messrs. Abbott Bros., but Mr. W. P. Meadows, of Syston, near Leicester, and Mr. Charles Howes, of Cottingham, Hull, were also represented.

The following is the prize list:—

CLASS X.—HIVES AND BEE APPLIANCES.

Section 1.—For the best and most complete Frame Hive, with stand, having provisions for wintering, and arrangements for obtaining comb honey in sections, and also for obtaining honey in a form suitable for extracting:—1st Prize, No. 57, Edmondson Brothers; 2nd Prize, No. 58, Abbott Brothers; Highly Commended, No. 57, Edmondson Brothers.

Section 2.—For the best and cheapest Straw Hive for the use of Cottagers, complete with floorboard, stand crate of sections, and provision for wintering:—1st

Prize, No. 62, Abbott Brothers; 2nd Prize, No. 60, Edmondson Brothers.

Section 3.—For the best and cheapest Frame Hive for the use of Cottagers, complete with stand, crate of sections, and provision for wintering:—1st Prize, No 65, *Edmondson Brothers; 2nd Prize, No. 66, *Abbott Brothers. [* Equal Merit.]

Section 4.—For the best collection of appliances, to consist of the following articles: 1 pair of section crates ready for putting on a hive; 1 extractor; 1 rapid feeder; 1 smoker, or other instrument for quieting bees; 2 boxes of comb foundation, containing 2 lbs. each, one thick, the other thin; 1 veil; 1 swarm-box for travelling, capable of being used as a nucleus hive; 1 travelling-crate for comb honey; collection of honey bottles, different varieties, not exceeding six in number. Each article to be priced separately, the prices to be taken into consideration in awarding the prizes:—1st Prize, No. 73, Abbott Brothers; 2nd Prize, No. 67, Edmondson Brothers.

Section 5.—For the best Smoker for the use of Cottagers, the points to be chiefly considered being cheapness, durability, and capability of being easily worked and kept alight with any ordinary fuel:—1st Prize, No. 71, Edmondson Brothers.

MIDDLESEX BEE-KEEPERS' ASSOCIATION.

At a meeting of the Committee held at the Board-room of the Royal Society for the Prevention of Cruelty to Animals, on Friday, April 26th, a vote of three guineas was made towards the expenses of the B.B.K.A. exhibition of honey, hives, &c., at the Royal Agricultural Show at Windsor in June next. This is a part of the sum usually set aside for prizes at various Shows within the limits of the county. It is thought that many members of the M.B.K.A. will make an effort not only to be present on this occasion, but also to enter the lists and send honey for competition.

Foreign.

CALIFORNIAN HONEY CROP.

A fair crop of honey has been gathered and marketed this season. The quality has also been up to the average, and the price has ruled high enough to be satisfactory to apiarists and dealers. This is as we anticipated in our report last year, and as far as present prospects can be read, the outlook for the next crop is equally good, although fears for a small crop are entertained.

As we have mentioned more than once in our annual reviews, it is very difficult to give a correct estimate of the Californian honey crop. One reason for this is found in the fact that no reliable or other statistics of the article are kept in the different counties and localities of the State, as there should be. Consequently, we are compelled to rely wholly for this information on reports from our agents and correspondents, which is reliable as far as it goes, and on this authority our estimate of this season's crop is made. From the fifty or sixty thousand colonies in California for the year 1888 there were marketed of extracted honey 3,000,000 lbs., and of comb honey 500,000 lbs., or a total of 3½ million pounds for the season. This result, compared with former seasons, is favourable, as the following figures evidence: 1887, 1,200,000 lbs.; 1886, 5,000,000 lbs.; 1885, 1,250,000 lbs.; 1884, 9,000,000 lbs.

A great portion of this season's crop was shipped by steamer or rail direct from the apiaries to San Francisco, as the following statistics show: extracted, 1,200,000 lbs.; of comb honey, 300,000 lbs., or a total of 1½ million pounds. This also compares favourably with the receipts of former years, viz.: 1887, 1,300,000 lbs.; 1886, 2,500,000 lbs.; 1885, 2,000,000 lbs.; 1884, 3,600,000 lbs.; 1883, 1,400,000 lbs.; 1882, 1,000,000 lbs.

Since the first of this year the receipts have been 1000 cases of extracted and 450 cases of comb, and for the remaining four or five months they will probably be light, as the interior supply is getting limited.

A better demand and higher price of the article caused much larger shipments of it to be made to Europe this season than were made last year. They amounted by sailing vessel to Europe and other foreign countries 700,000 lbs., and by sail *viâ* New York, 175,000 lbs. The principal part of these shipments went direct to England, the balance to Germany. France did not import any from here during the year, but will probably soon become an importer.

Overland shipments, including those for Europe *viâ* New York, amounted to nearly one million pounds, while in 1887 they were 950,000 lbs.; 1886, 2,000,000 lbs.; and in 1885, 1,270,000 lbs.

These heavy and constantly increasing shipments show that Europe is a large consumer of our honey, and that it is important to all concerned in the honey trade to do everything that can be reasonably done to increase it by taking great care in producing a fine article in all respects, and putting it up in good and strong packages. The quality and colour should also be looked after by the apiarist, dealer, and shipper.

The average price of extracted honey during the last season has been from 5½ to 6½ cents; for comb honey, 10 to 12½ cents per pound for one-pound sections, while the two-pound sections have been sold for less. Present quotations are 5½ to 6 cents per pound for extracted honey.

It is too early now to say what the crop of the coming year will be. Spring rains are necessary, and if we get them, there will be a good yield. We feel confident though in saying that the outlook so far is good, that the coming season will probably not be behind the past one, although nothing certain can now be said.—*Report of Messrs. Schacht, Lemcke, and Steiner.*—(*American Bee Journal.*)

CANADA.

The indications certainly are that a more favourable winter has not been for years, and from all directions the reports are that bees are in the best of condition. The first pollen was reported on March 17th; the earliest known to me other seasons has been April 2nd. March has been a pleasant month, but yesterday (March 31st) we had a heavy snowstorm, about 10 in. here, with a temperature but little below freezing. To-day the sun is shining brightly, and the snow disappearing very rapidly. I have lost two colonies out of forty-six from starvation; almost all the remainder are strong, but a number very short of stores, and here I had to take out and feed candy. To-day I have kept them from flying by piling snow over the entrance, as so many would be lost on the snow if they should fly.

Already the indications are that we will have a grand Convention when the International meets here. The date has been all but fixed for December 4th to 6th, and we should much like to see some of our European brethren with us; a favourable honey-season may induce some to be with us.—R. F. Holtermann, *Brantford, Canada, April 1st.*

The Buzzing of Insects Explained.—The buzz unites a deep and a sharp sound. The deep sound comes from the wing, provided that the vibrations are sufficiently rapid. The sharp sound, an octave usually above the other, is produced within the thorax, as has been ascertained by experiment. A supposition prevailed that it was due to the passage of the air through the stigmata, and the vibration of their valvules; but these openings have been stopped with birdlime, and yet the sharp sound continues. It keeps on even when the wings are cut off.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 2nd page of Advertisements.)*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

PURITY OF RACES.

[2065.] I wish to call the attention of your readers to a remark by the writer of 2046, about the purchased queens: 'I would be against Ligurians, as I purchased several queens of the same race from other dealers, and they were, without exception, failures, and I have little doubt were hybrids of some degree or other; but my one Ligurian filled a hive such as I never saw before or since,' &c. Several writers recently have complained of queens not true to race being sent them, and in several cases the fact of having a vicious sort sent when the race is supposed generally to be quiet, tends not only to condemn the race in the eyes of the novice thus taken in, but also, if dealers would only see it, in the end will stop the ready sale of queens. I am well aware that the idea has cropped up that home-bred queens, Ligurians or Carniolans, are to be preferred to imported ones. This may be so, but I would caution dealers who go in for this that as some races depose their queen unknown to their owners, also that as drones are readily accepted by queenless and other stocks, and also that as they are said to fly miles to mate, every precaution possible should be taken to exclude all drones except the sort desired, as where several races are kept in a small radius, there must of necessity be hybridisation. It must be palpable to every one that a man who sells a hybrid for a pure Carniolan or Ligurian, however prolific it may be, is acting dishonestly, and in the end is liable to give a bad name to that which, for the present, they may make money out of. I am of the opinion that the Association should try in some way to check this fraud on the public, and I suggest that to do this experts should be sent to examine any suspected dealer's apiary, and if found out, that he should be posted in the Bee Journals. Unfortunately, until some time has elapsed, first crosses are not immediately found out, and Carniolans are much the same in appearance as some light races of blacks, and when the thing is found out, then the blame is naturally thrown on something else. By means of modern appliances, it is only too easy to raise queens by the score, but it is only too difficult to have them purely fertilised. In the hands of an ordinary purchaser, races of bees only too soon degenerate, even if the original queens purchased were pure bred, purely fertilised foreign ones; why must he have a three-quarter bred instead of the genuine article?—Jersey Bee-keeper.

BEE FEEDING.

[2066.] I have something more to say regarding my notes which you published April 18th (2056), which I hope you will think worth publishing. Sine writing my notes, I have seen the gentleman who gave me the sugar, and I told him how much my bees liked it, and your remarks about treacle, &c. He said that the sugar for which he got under 1½*d.* per lb., was in fact cleared of its treacle by a centrifugal machine, the treacle being used for other purposes—preserving tamarinds, &c. He told me he believed this sugar fetched 15*s.* or 16*s.* in the market now. So I wrote to his agent, who sent me the enclosed letter, stating that I could not now get any under 21*s.* per cwt. I see, however, that Tate's cubes quoted at 27*s.* on the date my letter was received. My experience satisfies me that bee-keepers to whom money is a consideration should use this or sugar similar to that I recommend. Only yesterday I gave one of my stocks in a glass hive a good-sized bottlefull, and it was all consumed during the night, without a drop being wasted. Surely the pure article must be better for the bees than refined kinds. At all events, whilst my neighbours' bees, fed on expensive white lump, have died, mine are well and strong. If bee-feeding were to continue on the scale of last year, it would, I fancy, be a good plan to establish a central depôt for the purchase and distribution of cane sugar to bee-keepers. At present it appears that the middlemen get undue profit.—L.

[See our reply on sample of sugar forwarded by you in 'Notices to Correspondents.'—Ed.]

SWARMING.

[2067.] I must nearly have beaten the record in the natural swarming line last year. You will see from the enclosed diagram that I had six stocks from one unaided hive. During May I tried my best to stop this lot from swarming. It was on twenty-four standard frames, with an entrance the whole width of the hive, and two inches deep. The original queen died soon after the first swarm. The queen that went with the cast swarmed twice in the year of her birth; is this not exceptional? The swarms on the 22nd and 29th were the largest I have seen. All except the last came off on a Sunday (the only day I am at home). All have wintered satisfactory, and the six young queens are now laying very well. I took no honey last year, though in 1887 I had nearly 150 lbs. from one hive.—E. B. Downer.

Dates of Swarming.

1888. *Carniolan Stock.* Queen pure, English bred, born June, 1887.	1st swarm May 20—July 8 (young queen). Virgin queen July 29.
	Cast May 27 { July 22. August 28 (returned).

QUEEN-REARING.

[2068.] In the advanced age of this wide, developing pursuit, but few ideas can be advanced that have not already been thought of; but the days of criticism are not over, therefore many are fearful to make public their theories, for fear of the ordeals of the thinking public. Perhaps nothing in the whole bee-industry has received more careful thought than queen-rearing.

First, we want an easy, practicable method, wherewith we can rear handsome, prolific, long-lived queens. In this latitude, about March 1, when bees begin to gather pollen, select the finest colony, that is, the one containing the finest queen; feed this colony about a pint daily, with a closed entrance-feeder. You should, by May 1, have them 'boiling over' with bees, with thousands hatching daily, and drones a plenty.

Now put on an upper storey with ten frames, filled with brood foundation, with a queen-excluding honey-board between. But before doing this take out one outside frame, separate the others, and put a new frame of foundation in the centre. The frame taken out can be put in the upper storey.

Let the upper storey remain about five days. If the weather is favourable, the bees will be largely in the upper storey, and have the foundation nicely drawn out. Now remove the lower storey to a new stand, and place the upper one on the old stand.

Go to the old hive, take out the frame of foundation that was put in five days previous, and cut it full of oblong slits; it will have larvæ just hatched; exchange this for the old frame, and put it in the centre of the hive. At the end of ten days examine them, and if the

bees belong to the yellow race, you may think of going into the 'peanut business.'

You can now form nuclei from the other colonies, and in twelve hours insert one of the queen-cells, until the number of cells are exhausted. The result will be large, yellow, long-lived queens.

In a week or so the queens will be mated, and laying. By this time the other colonies will begin to swarm; when one swarms, hive the swarm on a new stand, and go to one of the nuclei colonies that has a laying queen, remove her, and cage her in the old hive from which the swarm has just issued. In twenty-four hours she will be released and laying. You can now place a new queen-cell in the nucleus. By this method the old colonies are not queenless more than twenty-four hours at any time. If left to 'nature's way,' they would be at least fifteen days without a laying queen; consequently a loss of 30,000 or 40,000 bees, and hence it is wastefnl to allow bees their own habits, as far as bees or increase is concerned.—G. W. M'Guire, *Dark Ridge, N.C.*—(*American Bee Journal.*)

BEES IN SWITZERLAND.

[2069.] When in Switzerland last summer I was much interested in observing the methods of bee-keeping practised there. In some places I saw hives of most primitive construction, being simply hollow pieces of tree-trunk, with entrance at the bottom. These were placed on shelves round the chalets. But most frequently the bees are kept in boxes, whether with frames or not I could not always determine, but I think usually not. These were often placed round the chalets on shelves or projections from the walls, but several times I saw them arranged in tiers in a frame on the wine-bin system. One such frame which I saw must have contained nearly fifty hives.

Honey is consumed in Switzerland to a very large extent, as it forms a staple breakfast dish at every hotel, but a great deal of this is, I believe, adulterated with glucose.—F. Gayner.

BEES AS FOOD.

[2070.] In the number of the *British Bee Journal* for December '88, I noticed a letter from a gentleman inquiring for information regarding the eating of bees (No. 1935). Not having seen any reply to that letter, I might be able to give your correspondent some information on the subject. The most relished portions are new combs with sealed brood, full sized and pure white, having honey in surrounding cells, and while still warm from the hive (bee-nest, as it is commonly called here). I have seen the above eaten with great delight by many respectable people, and was told it was delicious; they even preferred it to plain honey-comb. I have been asked for young bees for eating from my hives, but always declined giving them.

Boiled ant-eggs are also considered a delicacy up country. The eggs are about the size of barley, and are served up like rice.—Cape.

Echoes from the Hives.

Blackheath, April 24th.—Thinking it may interest some of your readers to hear acconnts from different parts of the country, I send you the result of my observations in the village of Piddington, Oxfordshire. The village is a small one, with some 300 inhabitants. There are at least five bee-keepers, all of them skeppists. Four of these, with a total of thirteen hives, have (so I learn) not lost a single hive during the past winter or the present spring. The remaining one has two hives, but I did not hear whether any had been lost. Judging from the terrible accounts of mortality one hears from other parts, it would seem that the Piddington bee-keepers must either have been particularly fortunate, or else be particularly skilful and careful in their management of bees. This merit, I fear, I cannot accord—well, to all of them. The only other alternative that suggests itself is that we have heard the bad reports from all ronnd the country, and not the good. The only bar-frame hive I saw in the village was a new one not yet inhabited. I found little or no antipathy to them, though a veteran bee-keeper of sixty years' experience, with whom I had a talk, appeared to regard them with some suspicion. My host informed me that a large box-tree of his, which has just gone out of bloom, has been surrounded by thousands of bees at work upon it. Has this been observed as bee forage?—J. M. Stone.

[The common box (*Buxus sempervirens*) affords the bees a supply of yellow pollen during the month of April.—Ed.]

North Devon, April 26th.—On the 16th, being a fine day I took the first opportuniiy of examining my stocks, sixteen in number, and I found them in good condition; but more than half of the stocks are dead round here, the last season being so bad, but I hope this season, 1889, will be better. There are new ideas in hives this year. I saw some good hives in the apiary of Mr. Trebble, of South Molton, the other day, which I think are just what is wanted for the non-swarming principle. These hives were worked last year, and Mr. Trebble told me that he is going to work all of his on that principle, for swarming is a great bother with me by reason of looking after them, for if I want a swarm it is very easy to make one. The hive consists of a body-box interchangeable with ten frames, double-walled with super lift under body-box and super lift on top of body-box, with moveable stand. This lift under body-box has a door in the back, so as when the combs in the sections are drawn out the case of sections is put on the top of body-box to be filled with honey, and an empty one takes its place. There are honey-boards to keep the queen and drones in the body-box, and it is so arranged that the bees can go to the sections without going through the excluder zinc, and the under crate can be drawn out without hurting the bees in least, and the body-box is not moved or the honey-boards. It is a good, simple hive, and at a small cost. I have ordered them for all of my hives that have moveable stands, as this is just the thing I wanted to get hold of.—North Devon Bee-Keeper.

Honey Cott, Leamington, April 29.—At last we have had a few nice days, of which the bees have taken every possible advantage, revelling in the blossom of the plums, and going off to the woods, coming back laden with pollen, going off in the morning before six o'clock; they seem as though they were determined to make up for lost time.—John Walton.

Killarney, April 29th.—This has been a very favourable spring here. Pollen is being brought in large quantities, and has been so ever since the year began. My best hive was at work at it in the last days of December, and has continued so during every fine hour ever since. All my hives are on a modification of Cowan's plan—with broad end frames, an outer hive, and rain-proof cover, and a tray of cork-dust over the quilts.—F. J. McD.

NOTICES TO CORRESPONDENTS & INQUIRERS.

C. M. R.—Money can be forwarded to Minorca by Post Office Order.

D. R. Daly.—*Queenless Colony.*—Transfer the combs from skep containing brood to frames, then unite the bees to queenless stock: do this on a warm day, first bringing the two colonies close together.

ENOX.—*Supering for Fruit Bloom.*—If the colony is crowded on ten frames, reduce to eight, and put on rack of sections; they will then, if there is plenty of bloom in the neighbourhood, most likely go up in the sections.

J. BULL.—1. *Sample Super Foundation.*—The sample sent is of last year's make and of very fair quality. Purity good. 2. We have forwarded to you a letter on the remaining portion of your letter.

L.—*Sugar for Feeding.*—The sample sent is a medium Indian sugar, evidently either Jamaica or Barbadoes, and as a sugar for dry sugar feeding of second-rate quality. Your argument, that because potatoes contain starch you ought not to eat them, as you do not like starch in its commercial form, will not hold good, as without starch man could not live. The bee can and does exist without treacle. Bees will not eat treacle, man will eat starch, even in its commercial form; to wit, arrowroot. Your sample of sugar has been taken from the upper portion of the original package, after standing some time, from which the greater portion of the treacle (molasses) has drained, but not wholly so; in fact, without refining it cannot be entirely freed from same. Sugars have risen in price lately very considerably. If you will try a *good* granulated sugar upon your table you will find its sweetening qualities quite equal to the sample sent, without the peculiarly unpleasant (treacly) twang of raw sugar, but if you use refined (pieces) sugar quite opposite results will accrue, as pieces are extensively adulterated (?) with beet sugar; upon this bees will not flourish.

M. A. EDMONSON.—*Transferring.*—The bees leave the inverted skep, and go up to the frame-hive above as soon as the brood in their old combs has hatched out. Then give plenty of room in frame-hive and also in supers as needed; removing the original domicile as soon as vacated. Either do without a floor, where the skep can be inverted in a body-box of the same size as the one placed above; or make a temporary floor to new hive, with a hole 6 inches square cut through for communication.

JERSEY BEE-KEEPER.—We quite agree with Mr. Simmins, p. 23, *Modern Bee Farm*, where he says, 'It will be found by making the distance $1\frac{3}{8}$ or $1\frac{1}{4}$ inches, when starting new combs, that the bees will build them almost entirely of worker-cells.' He does not say such will absolutely prevent the production of drone-comb, as you appear to understand it; and as the age of the queen has to be taken into consideration, we have no doubt he has, as he states at p. 156, 'avoided the building of drone-comb by placing the frames rather less than $1\frac{3}{8}$ from centre to centre.' Mr. Simmins advocates the use of young queens only, and from our own extended experience we are aware this is one important point as a means of suppressing the desire for drones.

SUGAR.—Crystallised Demerara is *not raw* sugar, but highly refined. Good sugar for bee-feeding can hardly be bought at the present moment for less than 3*d.* per lb. We prefer to give beet sugar a wide berth. Try bees in early spring with beet sugar, and you think they are willing to starve with plenty at hand because of the cold. Remove it and give cane sugar, and you have a convincing proof of the superiority of the latter at once.

JoRoLo.—1. *Fanning.*—Yes, they often 'fan' out of pure cussedness when there appears to us no earthly reason for so doing. An excited, feverish condition is no doubt the cause of such abnormal individual vagaries. 2. *Plants near Hives.*—It is no advantage (or otherwise) to sow bee-plants so near your hives as three feet; the bees by preference will frequent the same class of plants at a distance; they seem to demand a flight for each load. 3. *Entrance to Hive.*—The obstruction is objectionable, and your bees are trying to remove it by nibbling it away. By preference lean a square of glass before the entrance to prevent robbing. 4. We believe there is nothing wrong with 'A. E.;' quite recently he seemed in the best of health, only *cacoëthes scribendi* has not lately troubled him, and the spirit to JOT has not moved him.

BEGINNER IN BEE-KEEPING.—1. *Arranging Site of an Apiary.*—The best plan of keeping the groundwork of the apiary is by using sea gravel, if it can be had easily. This is to be recommended to large and small bee-keepers alike. First, dig over and level the ground intended to be used, and clear out all roots and weeds. Procure some engine ashes and cover the ground with these to a depth of at least three inches; over this put a thin coating of *till*, to bind the ashes together. Then give the ground a good beating with a spade to harden the surface, or pass a roller several times over it to make a level surface. The ground is then ready for the gravel, which may be put on about one inch deep. If desired some flower clumps can be interspersed among the hives. All that is necessary afterwards to keep the ground-walk in order is an occasional run over with a hoe to keep down small weeds. We have tried the plan of keeping on grass, *cut short*; of putting on ashes and spent tan to keep down the grass; and also allowing rabbits to run among the hives; but have discarded all these in favour of the gravel. 2. *Hive Stands.*—One of the best hive stands in use is two pieces of board notched into each other at the centre (as shown), 26 inches

long and of 6 × 1 stuff. These pack into little compass when moving to the heather. Any amateur can make them, and they should have a coat of paint, or even tar, before using. For some years we have used for hive-stands the cases that came from America with our 1000 one-pound sections. They are uniform in size, and all that is required is to cut the case through at the four corner-posts in the centre. Each case makes two very substantial hive-stands by this method.

H. A.—*Moving Bees.*—The bees may be moved the distance mentioned, care being taken to make the bees mark their new location by a piece of glass being placed before the entrance.

C. C.—*Doubtful Comb.*—From your description there is great doubt whether your hive has been troubled with foul brood. We rather think it has not. But there being a doubt respecting so virulent a disease as foul brood, it would be advisable to melt the remainder of your combs, and have new foundation. Employ the usual means for cleansing your hive.

SENEX.—*Wax-moth.*—It is a pity that these moths have been allowed to have gained such a head in your hives. To keep them in check requires great watchfulness and cleanliness, together with the prompt destruction of every moth, larva, and cocoon. To get rid of them without troubling your bees will be a difficulty. Strong stocks and Ligurian bees are the most efficient safeguards against them.

RAW HAND.—*Manipulating Bees.*—Some stocks will 'boil over' more than others when you use the smoker, especially some of the hybrids. The roar to which you refer is usual with persistent smoking. There are cases of spiteful stocks where prolonged smoking appears imperative; but, as a rule, the less smoke the better—certainly for the bees. No doubt the bees you saw removed had got injured in transit. Sealed stores have flat, or even slightly depressed, cappings of a light colour; in fact, white when first

sealed. Sealed brood is covered with a much darker coloured capping, about the colour of a cup of coffee well creamed, and has a slightly rounded appearance. We should say your queens are all right. When bees come in busy, *without* pollen on their legs, they are generally bringing in honey, but nothing but an examination of the combs will give you any idea how much. Stocks with plenty of *ungranulated* stores do not require syrup. We prefer to boil syrup either in a tin vessel or an enamelled saucepan. Certain brands of lump sugar are well known to the trade as *not* being cane sugar. What used to be known as Duncan's Pearl Sugar (sold in 7-lb. bags) is excellent for syrup-making. We believe it is now sold under another name at about 25*s.* per cwt. Some brands of cube sugar are not cane sugar at all. A respectable grocer should be able to guarantee the quality of the sugar supplied, but we cannot continue to answer further. We prefer pea-flour, which we find our bees take greedily, but as you do not say when you offered your flour, we cannot say you were too late in the season. From now till next spring there should be no occasion for the supply of pea-flour. Should you desire further help, do not hesitate to ask for it.

A. L. Y. M.—1. *Supering.*—When the first rack of sections is nearly finished, raise it and place a fresh one under it if honey is still coming in. Remove the top one as soon as well sealed. Bees will not 'rest from their labours' while there is honey to gather, fine weather to harvest it in, and room to store it in. 2. *Honey Plants.*—Field beans and peas are good forage for bees. 3. *Broad Red Clover.*—The hive bee is still 'wanted' that can successfully harvest the tons of honey produced by this plant.

Henry Stuart.—*Carniolan Queens in first or second week of April.*—These must of necessity be queens raised the previous year or *before*, that is, *if fertilised.* We will make inquiries as to the carbolic acid.

Received from Mr. C. Redshaw, South Wigston, Leicester, his Illustrative and Descriptive Catalogue of Hives and Bee-keepers' Appliances, 26 pp.

BRITISH BEE-KEEPERS' ASSOCIATION.

Royal Agricultural Show.

The Committee urgently appeal for donations to the Special Fund, which has been opened on behalf of this Department. The following subscriptions have already been promised:—

	£	s.	d.
Mr. H. Jonas	2	2	0
Mr. Thos. W. Cowan	3	3	0
Rev. E. Clay	1	1	0
Captain C. D. Campbell	1	1	0
Proprietor *British Bee Journal*	3	3	0
Rev. Dr. Bartrum	0	10	6
Rev. Geo. Raynor	1	1	0
Hon. and Rev. H. Bligh	1	1	0
Rev. F. T. Scott	2	2	0
John Huckle	0	10	6
Geo. Henderson	0	10	6
W. B. Carr	1	1	0
Miss Eyton	0	10	0
T. F. Leadbitter	0	5	0
Middlesex Association	3	3	0

John Huckle, *Secretary.*

Kings Langley, April 25th.

SHOWS TO COME.

Bees, Hives, Honey, etc.

June 24-29.—Royal Agricultural Show at Windsor. Entries close May 1st. Secretary B.B.K.A., J. Huckle, Kings Langley, Herts.

Business Directory.

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NOTICE.

The *British Bee Journal* is published by Kent & Co., 23 Paternoster Row, and may be obtained of all local Booksellers, and of the following Agents:—

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THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.'

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Editorial, Notices, &c.

In Memoriam.

THE REV. GEORGE RAYNOR.

We very much regret that we have the painful duty to announce the death of the Rev. George Raynor, of Hazeleigh Rectory, Maldon, Essex. This sad event occurred on May 3rd His illness was of short duration; the cause of death was *angina pectoris*. Mr. Raynor was born on August 2nd, 1819, and was close on his seventieth year. In him the bee-community have lost a kind friend and a steadfast supporter. Personally we feel his loss with the utmost acuteness. While his gentle spirit was passing away, we were completing a biographical sketch of him as one of the 'eminent bee-keepers' of the day. This sketch, with portrait, will be presented in our next issue.

We have just received from Mr. J. M. Hooker, in reply to our information to him of the sad event, the following expression of his regret:—

Dear Sir,—I cannot tell you how grieved I am to hear of the death of our good friend, Mr. Raynor. There are few men held in greater esteem than he was by all who knew him, and his death will cause the universal regret of *all* bee-keepers. He was always ready to give advice and assistance to those in doubt in all matters concerning apiculture, and his gentle and kind manner won for him universal regard and esteem. Nor was this all; the advice given by him was of a practical and useful kind, such as can only be gained by long experience and careful observation. Although myself an old bee-keeper, the first thing I did on the receipt of the *Bee Journal* was almost invariably to read 'Useful Hints.' It will be long, I fear, before this part of the *Journal* will have so reliable an authority to represent it.

For myself I feel that I have lost a most estimable friend, generous, consistent, kind; not one of those who are afraid to express their candid opinions for fear of not being popular, and so do not support a movement they think right, and shirk it altogether, wishing to keep in with all, and sacrificing principle for peace. It was always a pleasure to act with him as a judge at any of our great exhibitions, his large experience and practical knowledge, combined with his high sense of honour and integrity, made it easy for those with whom he acted. I have met him in this capacity on many occasions, and I can truly say we never had a difference of opinion as to which articles prizes should be awarded.

In Mr. Raynor the bee-keepers have lost a sincere friend, an excellent judge, and one who has sought to raise the standard of bee-keeping, by advising the use of such articles as his practical knowledge knew to be best, no matter by whom made.—JOHN M. HOOKER, 76 *Tyrwhitt Road, St. John's, S.E., May 7th.*

AHEAD.

Now that the queen, humble-bee, and the mother wasp, are to be seen in our country lanes hard at work amongst the spring flowers after their long rest of winter, we know their congener, the mother honey-bee, will be equally busy in her own unobtrusive way in and out among the dark recesses of the hive. It behoves the bee-keeper, therefore, to be up and doing, making *his* preparations for the glorious harvest which everything tells us is before. Alas! he has all too many empty hives and no lack of spare combs, but these last come in specially useful in a time like the present. With ourselves two combs are kept for each hive, one filled in on one side with syrup slowly poured on whilst held in a sloping position, the other comb has pea-flour shaken into the cells on one side as it lays flat on a table. This plan, however, only uses one side of the comb, but a comb-filling box may be used for both syrup and artificial pollen (of course being washed and dried before being used for the latter). When a fine day permits, these two combs are put in the rear of the other combs in the hive, and much labour is saved to the bees. The clusters over the brood are undisturbed, and the cold draught through the brood accompanying the refilling of bottle-feeders prevented. It is an experiment worth bearing in mind. We thus do our utmost to stimulate the rearing of brood in large quantities, with as great a saving of labour to the bees as possible. This is looking ahead to the season of fruit and clover blossom, which will be upon us quite as soon as we shall be ready for it with our strong stocks, sadly too much depleted by the (in many cases) insufficient stores fed to them last autumn.

The bee-keeper has now, in the year 1889, such

a chance of recuperating himself for past bad seasons as rarely occurs, exactly as he had last year an unprecedented opportunity for indulging in the Briton's right of grumbling at his hard luck. The new season must be faced with true British pluck, which seems all the more dogged and determined to overcome obstacles the more these seem to 'let and hinder.' He must take a lesson from his bees, for they bury their past, and bravely and cheerfully hum on in the sunlight of a world of new hopes. Unless we are much mistaken in reading the signs of a good honey harvest, both from the book of nature and from the lessons of past history, the heart of the bee-keeper will be rejoiced by a right royal ingathering, his only part in the transaction being that he uses all the information of 'light and leading' at his command in building up strong stocks with no delay.

USEFUL HINTS.

Weather.—Bee-keepers may be congratulated on a decided improvement in the weather during the last fortnight. The lovely green of early springtime is rapidly changing the landscape. Cherries, pears, apples, and plums, are nearly in full bloom.

Feeding.—Pollen is now coming in freely, but the frequent recurrence of cold nights checks the formation of honey, therefore gentle but *regular* feeding should be strictly attended to. The call upon the working capabilities of our stocks is very heavy at the present time. Do not overlook the fact that a *regular* incoming of the requisite food is the great incitement to prolific breeding. Any excess of food supplied now will soon be used up. Give about a quarter to a half pint—according to the strength of the colony—of *milk-warm* syrup every *evening*. If the syrup is placed in the kitchen oven an hour or two before being given it will warm without trouble. Cattle-feeders find that giving water at 60° to fattening cattle enables them to lay on more flesh *per diem* because it conserves the natural caloric of the animal's body instead of suddenly lowering the internal temperature, as would be the case if the water was not more than, say, 35° or 40°. Nectar gathered on a sunny day is quite warm, and can therefore be stored immediately in close proximity with brood without causing a chill. In artificial feeding we should follow this clue.

Spreading the Brood.—Although we strongly advocate as little disturbance as possible to the brood-nest, still we would advise those who practise this method to be cautious lest they get the brood-nest too large for the colony to cover should we experience more cold nights. As we write the sky has assumed a very thundery appearance, and a heavy downpour of rain might in all probability cause a sudden fall of temperature that would be disastrous to a weak, overspread, and badly covered colony.

Quilts and Cushions.—These should not be reduced yet; if the fanners are busy at the entrances it will be preferable to open the entrances to their full width rather than to reduce the top covering.

Our Losses.—It would be extremely interesting, and also instructive, if it were possible to compile a complete return of the losses among the stocks in the United Kingdom since last October. We continue to receive sad reports from all parts of the kingdom, but we are gratified to find that the spirit of do-or-die still exists, and that our fellow bee-keepers are not completely disheartened by the past.

The Coming Season.—Every day, indeed every hour, should now be made the most of to enable us to be quite ready for the honey harvest. Those who allow natural swarming should by this time have spare hives, and if possible spare combs, ready against the moment when they may be wanted (*vide* our Hints on page 170 on the mode of preparing combs for further use). Locations for new hives should also be decided on, and where bricks, &c., are used to stand the hives upon, these should be in position and levelled so that the swarm can be rapidly stood. These may seem small matters, but attention to them is a handpost showing the road to success. All racks, supers, and foundation in hand should be gone over at once, if not already done; and any further supply required should be ordered without delay, or it may be found that the dealer is physically unable to supply our goods in time to make up for our dilatoriness in ordering. Extractors and honey cans should be well cleansed and carefully overhauled in order that any necessary repairs may be effected in good time. All the goods in use about the apiary should of course be thoroughly cleansed and *dried* immediately after use, but a spring clean is a great boon. Those who intend exhibiting at the Windsor Show should mature their plans accordingly.

Queenless Colonies.—These should be united *at once* to a stock having a vigorous queen, and if this combined stock be rapidly built up three or four good nuclei can be made from it. Towards the end of the month, if the weather be fine, ripe queen-cells should be ready to place in such nuclei. We again repeat that increase is practically our duty this season in order to fill up the gaps.

Supering.—Those having strong stocks that really crowd ten frames should make an effort to secure some hawthorn section honey, but sufficient quilts must be put on the sections to keep all comfortable, or most probably the bees will refuse to go up.

Supers should be put on during fine warm weather, and not then unless honey is coming in freely. Take every precaution against inducing neighbouring stocks to rob. Have everything in readiness close to the hive to be supered. Uncover down to the last quilt, then, as that is being removed, let it be replaced with the carbolised cloth, which should remain a few seconds. Remove cloth quickly, but gently, with one hand, and place the super on with the other, adjust, and cover up rapidly to conserve the warmth. There are many styles of racks in the market, and good sections can be obtained from most of them. A *sine qua non* should be a whole bee space at the *bottom*, but flush at the top, there can then be no *contretemps* in tiering up. Nothing is more vexing than good sections spoilt owing to brace-comb having been built.

Weak Colonies.—These can be induced to drag on a hand-to-mouth existence and be gradually built up by autumn. We prefer uniting two such, or if need be three such colonies, retaining the best queen, feeding them well, and as soon as they cover say ten frames well dividing into nuclei. Although to the novice this may appear paradoxical, yet it is well known to be the quickest way of increasing the number of our stocks. In bee-keeping the adage, 'Union is strength,' is beyond question.

Swarms.—Where the hives stand in a cosy position and full in the sun these may be expected shortly. Let an examination be made to prevent 'swarming out' being mistaken for the real article.

Wasps.—These are to all appearances scarce this season, still every care should be taken to prevent their increase. The early queens may generally be found around the gooseberry bushes and should be dealt with promptly.

Queen Rearing.—Many queens raised last year failed to mate owing to the unfavourable weather. Many complaints have reached of queens having *become* drone-breeders. Were the whole facts of the cause known it would be found in the majority of the cases that the queen raised during the season with our cog-

nisance had been deposed by the bees and her successor raised so late that fertilisation became impossible. Only very exceptional circumstances could nullify the fertilisation of a queen. Physical injury or prolonged exposure to a very low temperature being the most likely.

Railway Rates.—We hope every one who reads these lines will, as far as possible, use any influence he may possess to assist in this matter on the lines laid down by the Committee of the B. B. K. A., *vide* p. 193. Whatever may be individual opinions to the contrary, we *do* consider bee-keeping to be a growing industry. The proposed prohibitive rates are out of all character. Fancy nearly 2*d.* per pound for conveying honey twenty miles!

THIRTY YEARS AMONG THE BEES.

By Henry Alley.

Queen-Rearing.

(*Continued from page* 201.)

Separating Drones from Worker-bees.—Another point which seems to come in here is the matter of ridding a colony of undesirable drones. It is not always convenient to use those colonies for cell-building that have choice drones. Certainly I have found it so in my experience, and am often obliged either to go or to send a long distance for bees to utilise in queen-rearing. All such colonies are pretty sure to have an overstock of drones; especially is this the case with those purchased of the inexperienced, or the old box-hive bee-keeper, and of those who do not read the bee-papers.

I found it necessary to devise some way for destroying drones that were worse than useless. Here the swarm-box is brought into practical use again. A piece of perforated zinc an inch wide and as long as the width of the box is nailed across one end at the top of the box, so that two rows of the perforations will project into it. Place the hive on the stand and so elevate it that the alighting-board will be flush with the top of the swarm-box when the cover is removed.

Now, instead of taking the top of the swarm-box off, as advised in the former case when the bees are released, it is merely drawn back about an inch, or just enough to uncover the two rows of holes in the metal. If the bees have been confined in the box but a few hours, they will quickly start to run out. Sometimes when they have been in the box from five to ten hours, they will not start readily.

They may be made to move faster by taking the box up and striking the bottom of the end the bees are to pass out of hard upon the ground. This operation forces them into one end of the box and has the effect to enliven the bees, and in a few minutes they will be going from it to the hive at a rapid rate. As they do so, gently drum on the box and they will go all the faster. When a sufficient number of bees have entered the hive to protect the eggs, allow the others to go as they please.

A Word of Caution.—Let me say to those who have occasion to practise the foregoing method during a dearth of forage, that there is great danger of inducing robbing in the apiary, unless special pains is taken to protect the entrance of the hive the bees are to occupy. If the bees leave the swarm-box readily, there will, of course, be little trouble in that respect. I usually contract the entrance to about an inch, and, as the bees begin to crowd, it is gradually enlarged.

Robber bees are always on the alert in the apiary, and seem to know just when a hive is about to be opened, and they quickly take in all the chances offered to ravish an unguarded colony.

As no smoke is needed, nor should any be used about any of the operations connected with queen-rearing from the time the bees are put in the swarm-box till they have been placed in the nucleus, the danger from robbing is very much lessened. Too much smoke of any kind is detrimental to the bees, and as little of it as possible should be used in any work in the apiary.

Feeding while Cell-building is going on.—For satisfactory results, it is as necessary to feed a colony while cell-building is going on as it is to feed a cow giving milk and producing several pounds of butter per week. One must not expect a colony, not properly encouraged and stimulated by having syrup fed them, to rear choice queens. The combs may contain a large quantity of capped stores, yet that would not be of the least advantage in queen-rearing, so far as affecting the quality or the number of queens that would be reared.

What the colony needs at such times is something that will stimulate and promote the greatest activity and energy in the hive. Capped stores in any amount will not do this. I would rather have a few pounds of sugar syrup flavoured with a little good honey, than one hundred pounds of clear honey already stored and sealed in the combs.

When the bees are gathering from natural sources there is great activity in the colony all the time, both day and night, as long as the flow lasts. Now, this should be exactly the condition of the colony and continue so while cell-building is going on, and until the cells are sealed. After that, nothing but the temperature of the hive can affect the quality of the royal progeny.

All experienced bee-keepers are aware that feeding has the same influence on a colony during a dearth of forage, as does the fresh nectar from the flowers. Hence the importance and necessity of feeding liberally until the queen-cells are capped; that will be on the fourth day after starting them, or on the eighth day, counting from the moment the eggs were deposited. Those who test this will not fail to notice that all the cells will be sealed at about the same time, or at least within three or four hours of each other.

Kind of Food to Use.—The food to use for stimulation should be a thin syrup made of best quality of granulated sugar, flavoured with a little pure honey, and about three pints given each twenty-four. If honey alone is used it should have about one pint of water added to each four pounds. The bees should take the syrup at the top of the frames, as there is much less danger from robbing in that way of feeding than by any other. A Mason fruit-jar, described on another page, makes as good a feeder as any we have ever used in our apiary.

Interesting Points in Queen-Rearing.—We are now well advanced in cell-building, and everything seems to be working in a satisfactory manner. At this time could the combs of the queen-rearing hive be examined, cells quite half an inch long will be found. This should be the case in thirty-six hours after the cells were begun, and they will remain in about that condition until the fourth day, when the bees will rapidly make them longer and then seal them.

By placing one of the combs on which the cells are being built in a single-frame hive so that all the interior workings of the colony can be observed, a most interesting sight would be witnessed. There would not be one moment when any one of the queen-cells would not have a bee in it. No sooner would one draw out when another would enter. Every bee in the hive seems to feel and act as though the responsibility and future existence and prosperity of the colony depended upon what it did in the part it was taking in nursing and caring for the royal larva and bringing it to maturity with all possible despatch. All the bees, save a few of the oldest ones, furnish a certain portion of the royal food.

(*To be continued.*)

REVIEW OF GERMAN AND FRENCH BEE JOURNALS.

By J. Dennler of Enzheim, Alsace, Lorraine.

(*Concluded from p.* 202.)

7. *Liedloff*, '*Leipziger Bienenzeitung*,' No. 1, 1889.—Dr. Dzierzon is the writer of the first article entitled 'What is the most frequent cause of the Death of Bees in Winter?' which he answers by attributing it to premature breeding, which causes the bees to leave the hive while the weather is still too cold.

8. *J. F. Kern*, '*Vereinsblatt des Rheinish-Westfälischen Vereins für Bienen- und Seidenzucht.*'—No. 1 for 1889 contains an essay on 'Honey and how it may best be disposed of,' in which the writer specially stigmatises the so-called Swiss Alpine honey, which is simply a syrupy mixture of glucose and a little honey.

9. *C. Weygandt*, '*Die Biene*' (*Hesse*), No. 1, 1889.—Under the heading of 'Another Bee Enemy' Mr. P. Petersen gives a full description of the larva of the Meloe Beetle (*Meloe variegatus*). Dr. Brandau gives a description of the bee-sting.

10. *G. Seeliger*, '*Schlesische Bienenzeitung*,' No. 2, 1889.—Mr. D. Grouen, in his article on the 'Bees of Brazil,' which are mostly stingless, gives a list of eighteen species and the names they are known by in various parts of that country.

11. *Dr. Stautner*, '*Münchener Bienenzeitung*,' No. 1, 1889.—*Bees in relation to Plants.*—When the profitableness of bee-keeping was discussed at a meeting of the Bee-keepers' Association, it was asserted that many flowers would not yield fruit or seed if it were not for the visits of insects to collect honey and pollen. Many at the meeting doubted this statement, and one of the incredulous, to test its truth, tried the following experiment:—He planted some scarlet-runners in his garden, and when they were just beginning to flower he covered a portion of them with small bags made of a stiff kind of grass, the others remaining uncovered; and he found that the latter in due course of time formed pods and fruited, whilst the covered ones faded and dropped off. By these simple means, worthy of Darwin, was the statement verified that insects are necessary for the due propagation of flowering plants.

12. *C. Petzold*, '*Oberungarische Bienenzeitung*,' No. 1, 1889.—Mr. Arthur Kreichel recommends bee-keepers advanced in years to make use of the stethoscope. By means of this instrument placed lightly against the hive the movements and working of the bees can be plainly heard.

13. *J. Dennler and Zwilling*, '*Der Elsass-Lothringische Bienenzuchter*,' 1889.—No. 2 of this journal gives a description of the sophora-tree. From this tree, which flowers late in the season, bees collect much honey in August and Sepeember. The same number also contains some interesting information about bee-keeping in Palestine (Jaffa and Jerusalem).

14. *H. Hamet*, '*L'Apiculteur*.'—No. 1 for the current year announces the questions to be discussed at the Congress of bee-keepers in 1889, viz.:—

1. What are the bases of rational bee-keeping?
2. Should the management of bees be conducted on the same plan in different localities?
3. Is the production of wax the main object of keeping bees?
4. By what means may foul brood be prevented?
5. What influence have certain manures on the development or neutralisation of nectar in flowers?
6. Is it possible to produce honey in France at a price as low as the cost of production in America?
7. In the absence of official statistics, is it possible to determine approximately the proportion of honey and wax derived from hives with moveable combs and hives with fixed combs?

In No. 2 of the *Apiculteur*, Mons. F. Bouyssons, founder of the popular dispensary, 25 Avenue Victoria, Paris, writes about honey from a medical point of view. He says that the Australian honey, made by the trigona, has neither the flavour nor sweetness of eucalyptus honey from Algeria. Australian honey has a very strong odour, is of a greyish appearance, and of a sticky or pasty consistency. It is principally used for medicinal purposes, but its presence is very noticeable; it is also expensive, being about six times the price of the best European honey. Mons. Bouyssons writes in high praise of our humble native bee, which, visiting the most diverse plants, stores for our benefit a substance both delicious and wholesome, uniting at the same time with wonderful economy the useful and agreeable. The trigona has merits of its own, but he does not think we should give it the preference.

15. '*Bulletin de la Société d'Apiculture de la Somme*,' *No. 73, January and February*, 1889.—Mons. Guérin, of Péronne, in this number refers to the lycoperdon, vulgarly called *vesse-de-loup* (puff-ball), a mushroom of a round or oval shape, with a strong and disagreeable smell, which is made use of to stupify bees. The same number gives an account of Mr. Cowan's visit to Canada and the United States.

16. '*Le Rucher*,' *Organe illustré de la Société d'Apiculture de la Région du Nord.*—Number 6 for 1889 gives a translation of Mons. P. C. Schachinger's pamphlet, *Honey and its Use for Domestic Purposes*, as well as a description of the Rietsche and Guazzoni presses.—J. Dennler, *Enzheim, Alsace-Lorraine.*

CONTRACTION OF BROOD-NEST, ZINC, &c.

By Allen Pringle, Canada.

In the work of constructing a charming theory, there seems to be something very attractive, and then, if the facts are perverse and fail to fit, they must be made to fit. The trouble is, however, that these 'fits' are not quite apparent to the outsider.

Now, it seems to me that Mr. Simmins, in the article on 'Contraction of the Brood-nest' (1973, page 56), has constructed a very fine theory, and is endeavouring to fit the facts or the bees to it. His bees may be more accommodating, but I never could induce mine to do what he avers they will do over there. Mr. S. is opposed to the contraction of the brood-nest by means of division-boards and excluder-zinc when the honey-flow arrives, as it is possible, he says, 'to secure every advantage offered by their use, and greater economy and profit, without their aid, by a judicious manipulation of the brood-chamber and sections.'

To accomplish this, his plan is, when the flow commences, to remove the frames (standard size) from the hive 'all but the five best combs of brood. Arrange these near the centre, and on either side three quite empty combs.' Now for the result of this clever arrangement: 'The spare combs at the sides will keep the actual brood-nest clear of both honey and pollen all the season. . . . The spare combs accommodate the rush of honey during the day, to be ripened and carried above at night.'

That this is theoretically a splendid scheme, hardly any one would deny; but Mr. S. will pardon me for putting the practical part down as purely hypothetical—that is, in my opinion and experience. The idea that the queen and workers will proceed to carry out Mr. S.'s wishes, and confirm his theory at the same time by using those six empty combs in the manner indicated, is so contrary to what I know of their ways as to become comical, to say the least. I beg to kindly suggest to Mr. S. about how the bees out here (Italians, Syrians,

and Hybrids) would handle these six combs. With a first-class queen, not only the allotted five frames, but the reserved six, would soon be filled, or mostly filled, with eggs and brood; or, should the bees neglect or refuse to carry the honey up at night which had been gathered during the day, as directed by Mr. S., her ladyship, as soon as crowded for room below, would 'go higher,' and deposit her eggs in the sections. With an inferior queen, the six frames would in all probability be filled up with honey, and remain so, as would also a portion of the reserved five, which would mean a loss of fifty to sixty pounds in the sections. Now, when I set out for section honey, I want to get section honey, not honey in brood frames, and the above plan is the way *not* to get it. Then, in the case of a prolific queen, with full swing on nearly a dozen frames during the main flow of honey, there is, I claim, a considerable loss of honey in the end, no matter which kind is sought. Why? Simply because the time and energy of the working force will be consumed in excessive brood-rearing while the golden harvest of nectar is rapidly passing away. In the case of the inferior queen, while there is a great aggregate loss of honey due to such inferiority, there is, it is true, no ultimate loss of honey on account of the manipulation; but there is a loss of section honey, the equivalent of which, however, is, in undesirable form, in the brood frames.

How Mr. S.'s plan of six empty frames—three on either side—is to keep the remaining five 'clear of both honey and pollen all the season,' is indeed marvellous! The bees in this country have a settled habit of depositing their pollen pretty liberally in their brood frames where they need it, and can conveniently get at it; also some honey; and I have a private opinion that most of those eleven frames, so admirably arranged by our good friend S., would, during the season, get well sprinkled with both honey and pollen instead of remaining 'free from them,' especially the centre ones, with pollen.

The 'Excluder Zinc.'—I am at a loss to understand why some of our British brethren who stand in the front rank as apiarists should be so decidedly against the use of the zinc. For myself, after many years' experience without it, and nearly a dozen now with it, I would feel exceedingly loth to part with it. Give me the 'excluder' every time, whether for comb or extracted honey. With it I can get more of both kinds, and of a better quality, than without it. How this can be done follows from what has already been said, viz., by limiting brood-rearing at the proper time, and making the most of the working force for ingathering. As for pollen in the sections, I hardly know what a cell of it looks like since using the zinc.

Putting the Bees Out.—April, so far (18th), has been a very fine month, and the bees are going out of winter quarters in Canada earlier than usual. I commenced setting mine out on the 8th inst., a few colonies each fine day, cleaning them out and fixing them up as I go along, that is, after they have had their first cleansing flight. I always take the more restless ones, and those supposed to be short of stores, out first, leaving the quiet ones till later. During a backward spring a few years ago, I took the last of my bees out of the cellar as late as the middle of May, and they did as well as those taken out earlier. It must be remembered, however, before drawing any conclusion from this fact, that the latter, when taken out, were restless, and anxious to get out, while the former were quiet. I do not, therefore, imagine that the uneasy ones, had they been left in till the middle of May would have escaped.

The bees are coming out this spring in fairly good order, the principal difficulty being, as I apprehended, want of available stores, because of the candying of the honey in the combs. I found one starved from this cause, and several others just on the verge of starvation when relieved. These, with others, would have succumbed, I think, had I not watered them. I placed wet sponge at entrance as recommended in a previous letter, and they would come and sip the water from the sponge regularly. They were thus enabled to subsist for a while on the candied stores till relieved. Those not requiring the water left it, and I soon ascertained which colonies required it by the avidity with which they took it up.

We are hoping for a change for the better this season, although the weather wiseacres are already predicting another drought from present appearances.—*Selby, Ontario, April 18th.*

ASSOCIATIONS.

LOWESTOFT BEE-KEEPERS' ASSOCIATION.

The Annual Meeting of the members of this Association was held at the Public Hall on Monday, April 30th, the Rev. T. C. Scott presiding. The hon. Secretary and Treasurer (Mr. L. Wren) presented the balance-sheet, showing a balance of 7*l.* 4*s.* 2*d.* The report was read as follows:—'The Committee in presenting this report for the year 1888 (the most disastrous on record for bee-keepers) have the satisfaction of showing a balance in hand of 7*l.* 4*s.* 2*d.*, with forty-one members. The expert visited the apiaries of members during April and May, examining 131 stocks. The visit was repeated in the autumn, when 140 stocks were examined and packed for the winter. No bee-keeper living can remember such a summer as the last for bees. In consequence of the continual wet and cold but few stocks gathered sufficient honey to carry them through the winter. Scarcely a swarm survived, except it was fed liberally. Where feeding was properly carried out the stocks were in good condition in the autumn, and a fair proportion of such stocks have survived the winter. These, with feeding and careful attention, will make good colonies in time for the first honey flow. The loss of bees has been so heavy with cottagers and those who believe in the let-alone system that English honey cannot be cheap during this year, as there are few bees left to gather it. The prizes offered by the Society for honey at the cottagers' shows held at Blundeston and Corton were much appreciated, and brought a fair competition of honey.'

The balance-sheet and report were adopted without discussion.

Mr. Wren stated that Colonel Chester had resigned the position of President of the Association in consequence of leaving the district, and Mr. Lawrence Peto had received a letter from Sir Savile Crossley, intimating his willingness to accept the office. Sir Savile was thereupon elected President, on the motion of Mr. Wren, seconded by Mr. Kerry Rix.

Mr. Wren was re-elected secretary, treasurer, and expert, and the committee were reappointed as follows:—Rev. T. A. Nash, Rev. T. C. Scott, Mr. S. Cox, Mr. R. J. Colman, Mr. J. L. Clemence, Mr. G. S. Everitt, Mr. Kerry Rix, and Mr. F. Morse.

It was resolved to offer a guinea in prizes at each of the shows at Corton and Blundeston to cottagers for the best exhibition of honey.

The proceedings closed with a vote of thanks to the chairman.

BRITISH BEE-KEEPERS' ASSOCIATION.

The following protest against the schedule of maximum rates and charges proposed to be charged by the several Railway Companies under the Railway and Canal Traffic Act has been prepared by the special Committee for the use of County Associations, manufacturers of appliances, and bee-keepers generally.

RAILWAY AND CANAL TRAFFIC ACT, 1888.
Notice of Objection by on behalf of The Bee-keepers' Association.

To the Board of Trade.

I, the undersigned A. B., on behalf of , hereby give notice that I object to the parts of the proposed classification of merchandise traffic and schedule of rates and charges of the Company set forth in the first column of the schedule to this notice, on the ground set forth in the second column of this notice, and that my address to which all notices and communications may be sent is

(Signed) A. B.

Dated

SCHEDULE.

Revised Classification.	Grounds of Objection.	Alteration proposed by me.
Honey Class 4	*Honey in the Comb*, being easily broken and damaged, may be fairly left in	Class 4.
	Honey not in Comb, which sets or gets hard, is not liable to damage, is heavy, and should be transferred to.....	Class 2.
Beeswax 3	*Beeswax* is the hardest kind of wax, requires more heat to melt it, and is less liable to damage than any other, and should be in	Class 2.
Bee-Hives 4.	*Straw Bee-hives* being very light and bulky, may fairly be left in	Class 4.
	Wood Bee-hives being much heavier, stronger, and not liable to damage, should be in	Class 3.
'Joinery.'	'Joinery,' which is omitted from the Revised Classification of the Railway Companies, should be reinstated in Class 2 to cover articles not specially classed	Class 2.
'Smalls.'	It is proposed to abolish the class formerly known as 'Smalls,' and to charge special rates for all parcels under 560 lbs. As bee-keepers are principally farm-labourers and working men, all their parcels will come under these special rates, which are more than double the rates now paid. It will injuriously affect this most useful industry, and I appeal to have all parcels under 2 cwt. charged on the scale proposed for smalls by the Railway and Canal Traders' Association.	
'Terminal Charges.'	I consider the attempt to established these Terminal Charges, in addition to the Revised Rates, most unfair and unreasonable, because the rates not being through mileage rates, but being sectional, and highest for the first section and less for each succeeding section, it is manifest that the terminal expenses are included in these rates and are already provided for.	

The above refers to goods traffic only. Where it is found that any Railway Company proposes to take powers to increase their charges for parcels by passenger train (as the London and North Western Railway Company propose to do by their Schedule) by the abolition of the present rates by weight according to distance, and to substitute an arrangement by which they would have power to make considerable additional charges on such parcels, a clause should be added to the protest in reference to such traffic.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to Mr. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

JOTTINGS BY WOODLEIGH.

[1071.] Ye poor drone seems in a fair way to become extinct if our modern bee-keepers can have their questionable intentions to insure his non-production carried out effectively. Only a few years back full sheets of worker-sized foundation was the panacea recommended to prevent the production of useless (?) drones; and yet the busy bees managed to elude the crafty intentions of the bee-master to produce *all* workers by elongating many of the worker-cells; and the production of drones still went on, possibly by means of conflicting circumstances, such as the size of cell, with insufficient base room. The production was not up to the old standard when comb-building was left to the sweet will of the builders to lay their own foundation, yet probably the said puny-sized drone produced under adverse conditions was able to perform the marital requirements of its race, though not with the strength and vigour to transmit to its descendants as it would if produced under normal circumstances. Now we are getting suggestions *re* the non-production of drones by altering the distance of the combs. Has it not dawned on their minds that the natural instinct of the bees will outwit them in their endeavours, with the result that they will produce still smaller drones than ever, or have part of their combs spoiled by the bees gnawing one side of the comb to make room for the patch of drones on the opposite combs? If that is the result, where will the advantage to the bee-keeper come in?

Take the numerous articles we get on bee-culture in different periodicals devoted to the pursuit, yet one looks in vain for use in the production of fine large *drones*, while on queen production the *Journals* team with articles setting forth the best methods to produce them. Why is this? In other cognate pursuits the sires are considered of even greater importance than the dams, and every attention is devoted to the production of a fine, well-grown animal that is intended for the perpetuation of its species; ought it not to be so in respect to raising a good healthy, vigorous strain of bees? I myself consider it a point of vital importance in my own apiary, and I may add that in stocks that take the lead year after year in the totting up at end of season, I have whole combs of natural-built drone-size cells; yet I don't find that it is any impediment to the production of honey—in fact, as I stated above, those stocks take the lead. I admit having newer stocks of three or four years' standing hived on full sheets of foundation that do well, but have never beaten the old originals for bulk; possibly a fair number of drones in a hive acts as a stimulus to the workers. If it is so or not I cannot say, though I fully believe that a hive of ten frames—nine worker size and one drone size frames of comb—would produce more honey, taking a series of years, than a hive with all ten worker size and no drone size allowed.

I would advise purchasers of bees, either stocks or swarms, to have a certificate of healthfulness from the vendor. The two advertisements appearing in columns of *B.B.J.* weekly—I refer to the Bee Company in liquidation

and the Crown Bee Company's advertisement in first part of *Journal*—surely by that advertisement one company leads purchasers to understand that there have been diseased bees in the possession of the other Company, if not so still. I only draw attention to the matter. Comment is needless. Many bee-keepers will have to recommence this year, having lost all their stock, and a glance at our advertisement columns show that prices will rule 30 to 50 per cent higher than last year, owing to the large loss of stock.—WOODLEIGH.

BEE-KEEPING FOR COTTAGERS.

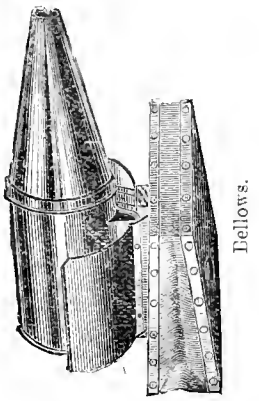
III.

[2072.] CONTROLLING BEES.—In beginning the practical part of bee-keeping we must first learn how to control, or become master of, the bees. We are obliged to think about this first, because bees have stings with which they defend their homes and stores.

The queens and workers only have stings. The sting of the queen is only used in battle with another queen, and not having any barbs, can be withdrawn after it has given the death-blow to another queen. The sting of the worker bee is barbed, and therefore cannot, as a rule, be withdrawn after being plunged into the flesh or clothes of the bee-keeper, or into a robber bee. Very often a part of its body is torn away with the sting, thus causing the death of the bee.

In order to examine our stocks without being stung we must first frighten the bees. It is well known that a swarm may be hived without any protection to face or hands. Well, on those occasions the bees are filled with honey, and they can then be handled without much fear of being stung. When bees are frightened by a puff of smoke being driven into the entrance of the hive they rush off to their honey-cells and commence gorging or filling themselves with honey. When thus engaged is the time to make an examination of the stock. If the bee-keeper is a smoker, a puff or two from his pipe, or, if not, from a smoker (see figure below), will be sufficient to enable him to examine a stock at almost any time of the season when bees are flying.

SMOKER.—A smoker is a tube through which a stream of air is driven by the working of a pair of bellows. To prepare it for use take a piece of coarse brown paper and twist it into a roll, every now and then doubling back a piece so that the smoke may pass up between the folds. Light one end of the roll, and, after removing the *chimney*, put the lighted end downwards into the *barrel*. Replace the chimney, and the smoker is ready for use. When not in use, and it is to be kept alight, the smoker should be placed as in the illustration.



At the end of the honey harvest, when the food is sealed, there is often great difficulty in examining stocks; but if a little honey made thin with water be sprinkled between the combs an examination may take place in a few minutes without fear of being stung.

Another method of frightening the bees is to place over the combs a cloth which has been dipped in a mixture of carbolic acid, water, and glycerine. The directions for preparing this intimidant (frightener) are given by the Rev. Geo. Raynor as follows:—'One and a half oz. Calvert's No. 5 carbolic acid, one and a half oz. glycerine, one quart warm water. The acid and glycerine to be well mixed before adding the water, and the bottle to be well shaken before using.' The barrel of the smoker is also prepared by Mr. W. B. Webster for producing the fumes of carbolic acid instead of smoke.

HIVES.—Hives are of two kinds:—

1. Those with *fixed combs*—skeps and boxes.
2. Those with *moveable combs*—bar-frame hives.

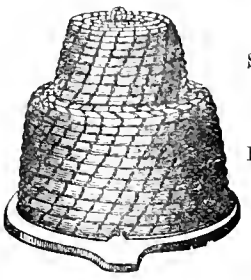
Every hive should have the following parts:—

(*a*) Floor-board.
(*b*) One brood-chamber.
(*c*) *Two* supers, at least.
(*d*) Roof.

THE BROOD-CHAMBER is that part of the hive which stands upon the floor-board, and in which breeding alone should be carried on.

A SUPER is a *skep*, *bell-glass*, or *box* placed upon the brood-chamber, and in which the bee-keeper gets the bees to store their honey for his use.

SKEP MANAGEMENT.—The skep system has been already in previous issues fully described by me, so I shall now only say how those who have stocks in skeps of various sizes should manage them in the coming season, or until they adopt a more modern style of hive. A further reason for not treating skep management more fully now is that a well-made stock hive (brood-chamber), with supers and other parts, will cost nearly if not quite as much as a hive next to be described, which is a nearer approach to the bar-frame hive.



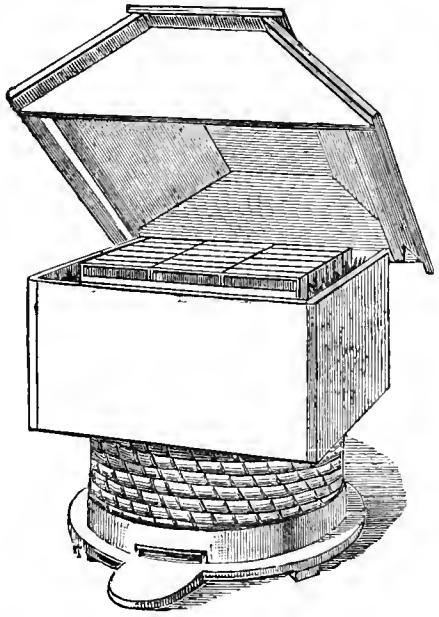
This illustration shows a skep with one super. Those who do not possess supers should get a set of two for each stock. They should be like the one in the illustration, not quite as far across as the stock hive nor as deep. A very convenient size would be fourteen inches across by six inches deep, both outside measurement. The supers should be of exactly the same size throughout the apiary and of the same width top and bottom. The reason for this will soon be seen.

SUPERING.—When to super is a question that cannot be answered by giving a date; but in those districts where orchards are plentiful supers should be ready early in May.

If swarms are not desired, the super should be placed on the brood-chamber when the stock is strong and the bees are working vigorously. To prevent swarming, the supers should be put on before the bees have begun to prepare for swarming. It should always be borne in mind that preparations for swarming are made, not simply when the stock is strong, but when it is crowded with bees, and the cells of the combs are occupied with brood and honey. A strong stock is sure to contain

lot of brood, and therefore there will not be much room for the newly gathered honey. In placing the super on the brood-chamber, care should be taken that the crevice between the super and the brood-chamber is well plastered with clay or some kind of paste, so that there is no escape of heat. Too much care cannot be taken to keep the super air-tight. Now, if the first super is left on until it is filled with honey, it will be too late to prevent swarming. When the super, therefore, is nearly filled with combs it should be gently raised, and another super placed between it and the brood-chamber. If all cracks and crevices are then made secure, the bees will build comb down into the middle super, while they will carry up and store the ripened honey in the top super. When the top super is filled and sealed it should be removed, and if the weather continue fine and honey is still coming in rapidly, the remaining supers may be treated in the same manner as the one first put on. Or, instead of taking away the upper of the first two supers, they may both be raised, and a third placed between them and the brood-chamber. Of course, the whole question of supering depends upon the weather and the honey-flow. The honey-flow is that part of the season when honey is gathered quicker and in larger quantities than at any other time.

Sectional Supers.—The illustration below shows a skep upon which is placed a super containing boxes, each of which, when filled, holds one pound of honey. This kind of super is used on skeps by many bee-keepers, who use the section-case and cover as protection to the skep in winter.



POLLEN: GETTING IT OUT OF THE COMBS.

[2073.] In some localities bees store so much pollen in their combs that it seems to those not as familiar with the inside workings of the hive as they might be that some device for removing this pollen would be of great benefit to them, hence I have heard of offers as great as $25 from a single person for some plan to remove pollen from the comb.

Some advise making into wax the combs containing much pollen, and then work the wax into comb foundation to put into the hive for the bees to draw out into the comb again; but all such advice seems to me to be a damage rather than a help.

In this locality we get large quantities of pollen—probably as much as is gathered in any place in the United States—yet I have never melted up a comb on that account; neither did I ever have any thrown out by the bees, as others claim that they have, unless the pollen had become mouldy.

With me there are two different periods that the bees store much more pollen than is worked by the nurse-bees into chyme for the young brood; one is during the bloom of hard maple, and the other during the white clover bloom. I have had combs of pollen gathered during the yield from hard maple which weighed as high as four pounds. At such times as this this I work as follows:—Whenever the bees gather so much as to crowd the queen, I take it away for the time being, and place empty combs in its stead. If there come a few rainy or windy days at this time, I find that the pollen is exhausted, so that the cells are once more empty or filled with eggs, as it takes large quantities of food for the numerous brood at this season of the year. After apple-bloom, there is but little for the bees to work on, and the surplus pollen is soon used up, and more needed, and I put back that which was removed, and thus brood-rearing is kept up more effectually than by feeding syrup, honey, or any of the many plans of stimulative feeding.

I consider plenty of pollen in the combs during the period of scarcity, between apple and clover bloom, to be of great advantage. Of course this season of scarcity may not come just at this time with all, but, in my opinion, there is a period of scarcity of pollen at times during heavy brood-rearing in all localities; wherever such is the case, this pollen is of far more value than is generally conceded, and when all bee-keepers realise its true value, there will be none left to ask how they must work to get it out of the combs by any process, save having it converted into brood.

The pollen gathered during the white clover bloom is treated differently from that gathered early, which rarely ever has honey placed at the top of it, while that from clover is placed in the cells till they are nearly three-quarters full, when the cell is filled with honey and sealed over, so as to preserve it against a time of need the next spring. This pollen is what some fear so much, if left in the hive during the winter months, believing that it is the cause of bee-diarrhœa; but I find that where bees winter perfectly, no brood is reared of any consequence till into March, and where no brood is reared, there is no pollen of any amount eaten.

Bees will starve with plenty of pollen in the hive, when they are not rearing any brood, as I have proved several times to my detriment in trying experiments; and it is only as brood-rearing commences that we can depend upon pollen to keep our bees from starving, in any sense of the word.

During the summer I find much pollen in this preserved state, especially in hives that are for a little while queenless, and when such are found, they are hung away in the room for storing combs, and sulphured, as occasion may require, to kill the larvæ of the wax-moth, which are sure to injure such combs very much, if not thus treated.

Combs containing pollen under honey are readily distinguished from those without by holding them up before a strong light, and looking through them, especially so if the combs are new.

When spring opens I again take the opportunity of placing all the combs that I have on hand containing pollen near the brood, and I find that this answers a better purpose to stimulate brood-rearing at this time of the year, than the feeding of rye or oatmeal, as is so often recommended. It is better, inasmuch as it does not lure the bees out of the hive in all sorts of unseasonable weather, to die from cold and the wearing of themselves out, so that they die of old age much sooner than they otherwise would, to say nothing of the cost of the

meal. In this way the pollen is used to a far better advantage than by inventing a machine to throw it from the comb.—G. M. Doolittle, *Borodino, N. Y.* (*American Bee Journal.*)

Echoes from the Hives.

Tulse Hill, May 4th.—This morning being unusually bright and warm I took the opportunity to look at my bees (which are blacks) before going to business. I found them very lively, and many out, but otherwise than being apparently very busy seemed all right. To my surprise, at a quarter past ten I got a telegram, saying my bees were swarming. I could not help but smile at the time, but soon found it was right when I got home at half past three, there being a very splendid swarm awaiting to be hived, which I soon did. —W. F.

Ditton Hill, May 4th.—Splendid (bee) weather. I cut out three *sealed* queen-cells from one of my hives yesterday.—H. A. Perkin.

Honey Cott, Weston, Leamington, May 6th.—This last two or three days have been glorious for the bees. Yesterday afternoon we had a thunder-storm, but at night it was a treat to hear the roar of the bees at the entrances, showing unmistakably they were doing something on their own account.—John Walton.

NOTICES TO CORRESPONDENTS & INQUIRERS.

F. H. Wright.—1. *Queenless Colony.*—They are rearing a queen which would issue from cell about the 30th of April. She is not very likely to be fertilised, as few, if any, drones are flying yet. She will most likely be a drone-producer. 2. *Carniolans.*—They are much lighter than English bees for reason of their having a preponderance of silvery hairs on throat and rings of abdomen. When pure they do not have any red brown saddle on back (we presume you mean abdomen); if they have this there is a cross with an Eastern variety, such as Ligurian, Cyprian, &c. We could inform you if you sent a few specimens securely packed—dead for preference.

F. M'Donough.—*Dead Bees.*—Your bees are suffering from having taken some improper food. Was the sugar you gave them beet-sugar? This will produce the effects noted. As warm weather sets in they will recover.

B. Musgrove.—1. *Adding Combs to Brood-nest.*—These must be added outside the nest proper. Do not separate the brood-nest until very warm weather sets in, and then only if the bees are crowded on all the frames then in the hive. The above will be your guide as to when to add them. Do not use foundation when you have fully built combs. 2. *Over Manipulation.*—Too frequent manipulations, especially in spring, are a great detriment to a colony. There is not the least necessity to manipulate every week during May, June, and July; do this only when there is an absolute necessity. We do not call just turning back the quilt a few inches a manipulation; this is all you want to do for the purpose of seeing whether they want more room. 3. *Building Up.*—Use a graduating feeder over the stock and feed very slowly until honey flow.

T. D. S.—1. *Subduing Bees.*—We have tried the carbolic spray, but prefer either Webster's fumigator or carbolic cloth; both of these are very effectual. 2. *Hybrids.*—The cross you propose should be quiet, but somehow you never know till you try. We have had queens raised from the same comb produce all gradations from blow-fly gentleness to extreme cussedness.

A. J. Wallis.—1. *Moisture on Alighting-board.*—This is a condensation from the warm air which is passed out from the hive. You do not say how wide open your entrance is. We prefer to have ours the full eight inches now. 2. *Drones.*—It is not too early for drones to be out, but only an examination of the hives can decide whether the queen is or is not a drone breeder.

S. Mitchell and G. Thatcher.—*Dead Queens.*—Ordinary cases of mortality which come alike to Queen and peasant.

H. S.—Your queen was a drone breeder. The comb sent does not exhibit any signs of foul-brood. We advise you to spray the combs with salicylic acid before putting them in another hive. Unite the bees *at once* to some other colony, or they will develop a fertile worker.

T. W. Hotham.—1. *Drones.*—These should be raised from a duly fertilised queen in drone cells. Queen rearing is similar to cattle-breeding in that you require the best parents in order to obtain the best offspring. 2. *Several nuclei in one case.*—You would find this very inconvenient during the building up. We should certainly prefer fewer nuclei if we were cramped for space, which we surmise is not the case with you. 3. *Raising Queen-cells.*—*If* you have a strong stock covering (say) eight or ten frames, place a frame of fresh foundation in the centre on the fourth or fifth day, remove all unsealed brood except the frame recently inserted; shake the bees back into the hive from those frames that you remove, put in as many combs as you remove (probably some of your other hives can give some in exchange that have some food and *sealed* brood in them), then if you want only (say) six queen-cells, cut the comb that contains the newly hatched right through, taking out as many pieces about an inch and a half long and somewhat triangular having one angle at top. Remove the grubs from a few of the cells surrounding the grub at top of hole and the cell walls outwards. This can be very conveniently done with a pointed match. Cover up, examine again not later than sixth day from the date comb was inserted, and you should find the queen-cells built round the grubs you left just above each hole. If many more than you require have been started, reduce the number as it is a very great strain on the bees. Be sure to feed gently and regularly with about a quarter of a pint of warm syrup every evening. Have everything ready to form your nuclei so that you can give them each a queen-cell about two or three days before they hatch out, otherwise the bees that raised the queens may destroy some of them. Have you noticed our recent remarks on Mr. Alley's system of queen-rearing? Perhaps you require more queens than we have named; if so, his plan will suit your case.

H. Livermore.—1. *Painted Floor-boards.*—We have tried them and failed to notice any ill effects. Some time ago one of our correspondents informed us that he painted the whole of the inside of his hives and found it successful. 2. *Surplus.*—You can hardly expect any surplus till the hawthorn is in bloom. Give your strong lot another frame in about four days. Do not let them want for food, and put your super on as soon as the hawthorn is out if the weather keeps fine and warm. Cover up the supers *comfortably.*

Raw Hand.—*Uniting.*—Before uniting the two stocks should be daily moved nearer to each other. Each hive can be moved two or three feet each day the bees *fly.* When close together unite, placing the frames alternately and removing one queen. Take away the empty hive. Place a board against front of hive to induce the bees to mark it.

George Barthrop.—*Bees entering Sections.*—Some degree of patience must be exercised by bee-keepers hoping and wishing that their bees will ascend to the supers. Certain conditions attendant on district and

sources for honey should be noted before putting on sections. We think from your description that it is possible that your bees will rise to the occasion and enter the supers provided: but it would have been better not to have inserted the sections before the bees were of sufficient strength to swarm or to work outside of the brood-cluster. You might place six sections in a section-frame behind brood, putting a piece of queen-excluder zinc between. As soon as they begin them shift on top of brood among the other sections. This will often make them start when nothing else will. 2. The sample of foundation is very good.

An Early Swarm.—Mr. John Haskett, of Okeford Fitzpaine, Blondford, took a good swarm of bees, which came from one of his old stocks, on Thursday, April 18th.

A Starvation Swarm.—On Good Friday the inhabitants of the village of Welwyn, Herts, were in great consternation because a swarm of bees had taken possession of an open space at the cross roads at the entrance to the village, to the very great discomfort of a party of bicyclists who had to ride through them. Of course the swarm was a starvation one, and not in the best humour.—G. J. B.

Received from Mr. T. B. Blow, of Welwyn, Herts, his illustrated catalogue of bee-keepers' supplies in English, French, and Spanish. This catalogue has been especially prepared for distribution at the Paris Exhibition.

We regret that when inserting on page 195 the communication by George F. Robbins entitled 'When to put on Sections,' &c., we omitted to give the authority. We extracted it from the *Apiculturist* (American).

BRITISH BEE-KEEPERS' ASSOCIATION.

Royal Agricultural Show.

The Committee urgently appeal for donations to the Special Fund, which has been opened on behalf of this Department. The following subscriptions have already been promised:—

	£	s.	d.
Mr. H. Jonas	2	2	0
Mr. Thos. W. Cowan	3	3	0
Rev. E. Clay	1	1	0
Captain C. D. Campbell	1	1	0
Proprietor *British Bee Journal*	3	3	0
Rev. Dr. Bartrum	0	10	6
Rev. Geo. Raynor	1	1	0
Hon. and Rev. H. Bligh	1	1	0
Rev. F. T. Scott	2	2	0
John Huckle	0	10	6
Geo. Henderson	0	10	6
W. B. Carr	1	1	0
Miss Eyton	0	10	0
T. F. Leadbitter	0	5	0
Middlesex Association	3	3	0
T. Elderkin	0	5	0
A. W. Robinson	0	5	0
P. P. Haslnck	2	2	0
T. D. G. Carmichael	0	10	0
H. G. Morris	1	1	0
Captain W. H. G. Ord	0	10	6
Sells & Son	0	5	0

John Huckle, *Secretary.*

Kings Langley, April 25th.

SHOWS TO COME.

Bees, Hives, Honey, etc.

June 24-29.—Royal Agricultural Show at Windsor. Entries closed May 1st. Secretary B.B.K.A., J. Huckle, Kings Langley, Herts.

Business Directory.

HIVES AND OTHER APPLIANCES.

Abbott Bros., Southall, and Merchants' Quay, Dublin
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Howard, J. H., Holme, Peterborough.
Hutchinos, A. F., St. Mary Cray, Kent.
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Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.

COMB FOUNDATION MILLS.

Godman, A., St. Albans.

HONEY GLASS MERCHANTS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Blow, T. B., Welwyn, Herts.
Pearson, F., Stockton Heath, Warrington.

NOTICE.

The *British Bee Journal* is published by Kent & Co., 23 Paternoster Row, and may be obtained of all local Booksellers, and of the following Agents:—

ABBOTT, BROS., Southall, London, and Dublin.
ANDREU, F. C., Port Mahon, Minorca.
APPLETON, H. M., 256a Hotwell Road, Bristol.
BALDWIN, S. J., Stanley Road, Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
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WITHINSHAW, A., Newcastle, Staffordshire.
WOODLEY & FLOOD, 26 Donnington Road, Reading.
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THE
BRITISH BEE JOURNAL

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Editorial, Notices, &c.

EMINENT BEE-KEEPERS.

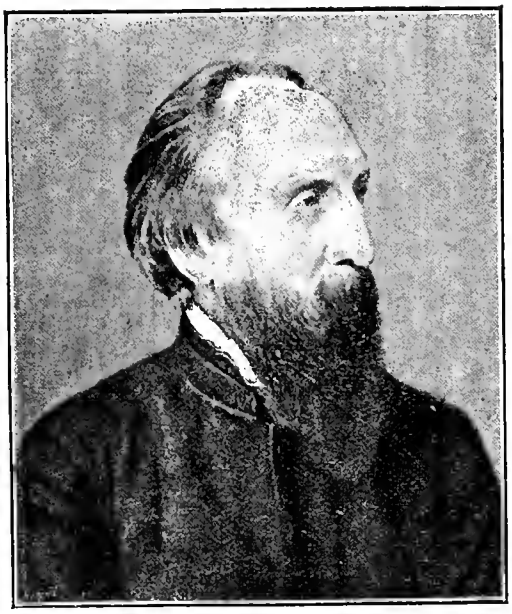
No. IV.—THE LATE REV. GEORGE RAYNOR.

It was our sad duty last week to chronicle the decease of our esteemed friend and fellow-worker, the Rev. George Raynor. He has so long been associated with the bee-keeping movement, and it is so recently, as at the annual meeting of the B.B.K.A., that he was present in our midst, that it is difficult to realise the fact that he has passed away from us.

Mr. Raynor was ill only one week previous to his death. He had taken a service at All Saints', in Maldon, on Thursday, April 25, and was taken ill immediately after, and had to be driven to his home. He became much worse with spasm at the heart during the night, and had medical advice early the next day. He rallied on till Friday, the 3rd instant, and was taken suddenly worse again, and quietly passed away.

We were completing a biographical sketch of him for this number, and while in the press we sent him a proof of the portrait which we present to our readers. He had then been confined to his bed for a week, but was better, and had just told Mrs. Raynor what to write to us, and how good he thought the likeness, when he dropped back dead. His end was without suffering, and the cause of death angina pectoris. Personally we feel the loss acutely, for we have been for many years on intimate terms of friendship, and have had in him a warm sympathiser in all our troubles and sorrows. Bee-keepers have also lost a friend, as he was always ready to impart information, and his kind and courteous manner had won the regard and esteem of all who knew him. As a bee-keeper he was thoroughly practical, and his long experience enabled him to speak with authority on everything relating to apiculture. He was also a good man of business, and his wise counsels will be missed by the Committee of the B.B.K.A.

As a judge he was impartial, and spared no time or labour in arriving at a just award. His high sense of honour and integrity made him particularly suited to act as a judge. In losing Mr. Raynor, we have all to deplore the loss of not only one of the most successful of bee-keepers, but also one of the most noble-hearted and kindest of men. As a speaker he was clear and fluent, using the most refined English. He was a kind husband, an indulgent parent, and as a minister of Christ he was full of love and zeal in his Master's service, knowing much of the truer and nobler life of faith, and ever earnest and faithful in caring for his parishioners' highest interests. With Mrs. Raynor and her sorrowing family we express our sincerest sympathy for the irreparable loss sustained by them.



REV. GEORGE RAYNOR.

The Rev. George Raynor was born on August 2nd, 1819, at Cropwell Butler, in the county of Nottingham. He was the eldest son of John Raynor, Esq., of Cropwell and Gunthorpe, in the same county. Left an orphan at the early age of five, and in consequence of a delicate constitution, his education was conducted privately. It was in 1845 that he selected the Church as his profession, and entered into residence at Clare College, Cambridge. Previous to this, although engaged in country pursuits, and taking an interest in cottage apiaries, he had not become a bee-keeper to any extent. During his boyhood he once secured a vagrant swarm that had taken possession of a chimney, by placing a skep on the top and driving the bees in by means of smoke.

It was during his University career that his tutor, the late Rev. W. Williamson, delivered a course of lectures on the writings of Virgil, closing them with the Fourth Georgic, and introducing beautifully wrought honey-comb as an illustration. From this time Mr. Raynor became an enthusiast on the subject of apiculture; and although for some years he had no opportunity of indulging his taste, he never even to the last day lost the interest which had been evoked. After proceeding to his degree, Mr. Raynor was ordained in 1849, by the Bishop of Rochester, to the curacy of Hemel Hempstead, and after his marriage in the following year he obtained an appointment in Newcastle, Australia.

On his arrival at Morpeth, N.S.W., he found that his bishop, Dr. Tyrrell, already possessed some half-dozen hives, which, left in the hands of the gardener, brought little profit. Mr. Raynor very soon put this neglected apiary into shape, and by adopting a system of supering henceforth enabled the Bishop to see on his table beautiful honey furnished by his own bees.

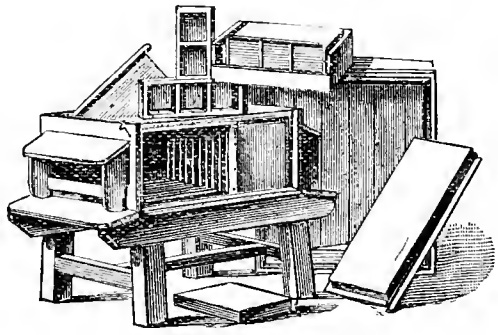
The arduous duties of a colonial clergyman left little time for the pursuit of apiculture. His health broke down, and eventually necessitated his return to England.

After holding temporary charges in Yorkshire and Worcestershire in 1853, he was appointed to the sole charge of the parish of Tottenhoe, near Dunstable, Bedfordshire. Here he established an apiary consisting of bar-hives, and an adaptation of Nutt's hive, with one collateral box only. He also worked skeps on the Grecian pattern, contracted towards the bottom, with comb bars and straw cover. He also used the observatory or leaf-hive of Huber, but gave this up owing to the propolising of the close-end frames in favour of the unicomb hive, with its glass doors, as improved by Bevan, Golding, and others, and which even to this day is considered the best.

At the close of 1856 Mr. Raynor removed to Kelvedon Hatch, where he was appointed to the sole charge. The bees bore the journey of over fifty miles admirably, not a comb in the hives being broken. Here he remained ten years, and became a correspondent to the *Field* and *Journal of Horticulture*, the only papers at that time which gave any information about bees. Through these he became acquainted with Mr. Woodbury and Mr. Carr of Newton Heath, and after some correspondence respecting the merits of the Italian bees, he determined on the first opportunity to give them a trial.

In 1866 another move was made to Tonbridge, the bees being removed by van without loss, and here the wished-for opportunity for Italianising his apiary presented itself. A visit was paid to Mr. Pettitt at Dover, and several Italian queens procured and placed at the head of strong colonies. It was about this time that Mr. Raynor adopted the Woodbury frame-hive, and soon the straw skeps were displaced by the moveable-comb hive, with all its advantages. During his five years' sojourn in Tonbridge, he made the acquaintance of many apiarian notabilities, and the proofs of Major Munn's edition of Dr. Bevan's *Honey Bee* were submitted to him for correction and suggestion. He carried on a correspondence with Mr. Woodbury, and received from this gentleman a number of queens for experimental introduction, and for other purposes. The pipe-cover cage was used, as well as partial stupefaction by means of puff-ball.

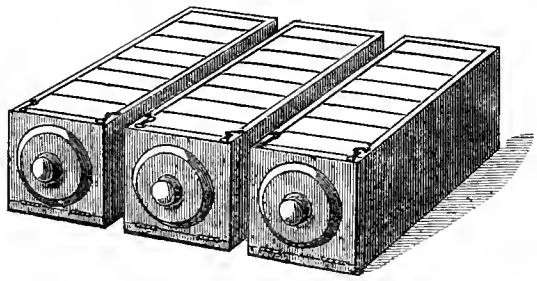
In 1870 Mr. Raynor was presented to the living of Hazeleigh, Essex, and in 1871 took up his residence there in a rectory house which he built on the top of a hill. Here Mr. Raynor had an apiary of between thirty and forty hives. On the establishment of the *British Bee Journal* in 1873 Mr. Raynor became a contributor to it, and his connexion with it has continued to the time of his death. His articles were always terse and full of practical advice, derived from long experience and observation. Since our connexion with the *Journal* he has written 'Useful Hints,' and has frequently replied to correspondents. He became a member of the British Bee-keepers' Association from its commencement, and it was at its first show that we first made his acquaintance, and that of all the prominent bee-keepers of that time, not a few of whom have been removed from our midst by death. In 1879 Mr. Raynor joined the Committee, and has served upon it ever since. Although occasionally suffering from bad health he has always been ready to work and to act as a judge when called upon to do so, and the calls were very frequent as his high sense of honour and strict integrity were well known and appreciated. When we brought forward the scheme for examinations of experts, we found in Mr. Raynor our warmest supporter, and he has ever since co-operated with ourselves on the Board of Examiners, his literary knowledge making him peculiarly suitable as an examiner. He was the author of *Queen Introduction, or, The Ligurian Bee, her Introduction to Alien Stocks, &c.*; also *Bee Houses and Hives*. To Mr. Raynor we are indebted for the use of the carbolic sheet in manipulations, an improved feeder, and several other appliances. The hive he used principally was one of his own invention, and is known as the 'Eclectic Hive,' which we here illustrate.



Raynor's Eclectic Hive.

The Hazeleigh Rectory well repaid a visit, and on the several occasions when we visited it we admired the neatness and order in which the bees were kept.

Mr. Raynor had used almost every sort of hive and tried every system, and at his apiary all the modern inventions were experimented upon. Every known variety



Raynor's Sectional Super.

of the domesticated honey-bee had also been tried and cultivated. A hearty welcome was accorded at the apiary to all interested in bee-keeping. There was no one whose opinion we valued more than that of Mr. Raynor's, and the acquaintance formed in 1873 had developed into a sincere friendship. He was one of the pioneers of modern bee-keeping, who has worked so bravely and nobly to raise the industry to its present position.

Mr. Raynor was interred on Tuesday, the 7th inst., at Danbury Church (about four miles from Hazeleigh) with his first wife. He leaves a widow (his second wife) and three sons, who have all very good appointments. Mr. Raynor has held the living, which was in his own gift, since 1870.

'Now the labourer's task is o'er;
Now the battle day is past;
Now upon the farther shore
Lands the voyager at last.
Father, in Thy gracious keeping
Leave we now Thy servant sleeping.'

We have received the following sympathetic and appreciative communications:—

'Our dear friend's departure makes a sad gap in our ranks. We shall ne'er look, I fear, upon his like again. But we may be sure that the example of his useful, benevolent, kindly life, will not be wholly lost. All that is good is immortal.'—E. Bantrum.

'It is with the greatest concern that I hear of the death of the Rev. Geo. Raynor,—a loss which the bee-keeping public will have much cause to regret. One would not have supposed him to have reached the great

age your memoir noted. Always kindly, ever ready to help our cause, energetic and painstaking in his onerous duties, the British Bee-keepers' Association have lost the service of one that it will be difficult to replace.'—W. B. WEBSTER.

'It is with great regret that I have read in the *B. B. J.* this morning the death of the Rev. Geo. Raynor. I am very sorry; he has been in my mind all the morning; he was a gentleman that was very much appreciated by us bee-men of the lower ranks. It is a great loss, but the inevitable will come to us all; may we be also ready!'—JOHN WALTON.

'Only those who have known our dear friend Raynor many years are sensible of the vast amount of good he has done our fraternity in his day. For myself I can only say that each time we came together I felt how short must be the time in which I had the opportunity of encouraging and fostering the growth of an admiring friendship between a humble disciple of our present science and a past master in the ancient mysteries of the craft. Such as he never reach the point of their true greatness till death has elevated and enveloped them in his mystery. After hearing of the accident to the Rev. G. Raynor, some months ago, I had prepared my mind for the probability of this bereavement, but I do not suppose any bee-keeper had forecasted the loss of two such masters as we have had in the rapid succession in Mr. Raynor's death after that of Mr. Raitt. Now, and for the future, one of the greenest spots "in memory's waste of years" is the visit I paid him at Hazeleigh Rectory one day last summer when swarms were leaving, swallows flying in and out of the porch close to one's face, and our dead friend was found, to his heart's content, deep in the pursuit of his lifetime's recreation. The flowers in bloom, the flowing river, the vast expanse of scenery, the murmur of contented bees unite in forming a retrospect only requiring "the touch of a vanished hand" to make it real. In his ashes will live his wonted fires.'—R. A. H. GRIMSHAW.

THE BRITISH BEE-KEEPERS' ASSOCIATION.

Members of the Association and Secretaries of County Associations are reminded of the Quarterly Meeting and Conversazione which take place on Wednesday next. County Secretaries should remind their representatives of the time and place of meetings.

The Conversazione will commence at 6 o'clock. Mr. R. A. Grimshaw will open the meeting with a short paper on 'The Language of Bees.'

NATIONAL CO-OPERATIVE FESTIVAL.

We are pleased to hear that this National gathering of working men co-operators, which created so much interest last year, is to be repeated. It will be held at the Crystal Palace on Saturday, August 17th. The programme, which was a very extensive one last year, will be considerably augmented. The Flower Show to be organized by the Agricultural and Horticultural Association has a Prize List already of 300*l.* for vegetables, flowers, and fruit. The exhibition of manufactures from co-operative productive workshops will be under the auspices of the Labour Association, which is doing good work in the propagation of the principle of the right of workers to share in the profits of their labour. The number of performers in the great concert will be increased to 5000, and a new selection of pieces will be sung, together with the Ode specially written for the occasion by Lewis Morris. The Home Industries Exhibition, the athletic sports, and the public meetings, are being arranged for, and it is anticipated that a very large number of people will be present. Industrial Co-operative Societies in all parts of the country are subscribing the necessary funds, and many well-known public men are taking a lively interest in its success.

This annual festival will doubtless prove a very valuable means of making known to working men the fact that co-operation is one of the most promising solutions of the difficulty with capital and labour.

The bee-keeping department was last year a great success, notwithstanding the badness of the season. We trust that with better weather the exhibition of honey and hive appliances will as far exceed that of last year as that of the Crystal Palace did that of South Kensington in 1887.

MARKETING HONEY.

However much has been written on the profits of bee-keeping, and the production of honey, the question is often asked by the bee-keeper, 'Where and how am I to dispose of my honey?' Whether he has ten hives or a hundred in a good season, his chief consideration is how to procure the best market and the best price. In a season like last there is little difficulty in disposing of his produce, but when several *plentiful* seasons come in succession it requires cuteness on the part of the bee-keeper to sell to the best advantage. Having had considerable experience in selling a large honey crop annually, and at a fair paying price, I shall here offer a few hints on how the bee-keeper may dispose of his surplus at the highest current price. To begin it is necessary for him to study beforehand his class of customers, and adopt the most marketable style of package. Some idea may be formed from what sold best the previous season. First let me take up comb honey. Since the introduction of sections into this country these have yearly grown in favour, and are likely to hold the field, the 1lb. size being the favourite. Wholesale grocers and fruit-merchants have little difficulty in selling these to their customers. In Scotland what are termed supers are still much in vogue. They are made of all sizes and shapes in wood, glass, and straw, and at many shows still form a very attractive display. Few English shows offer prizes now for honey in supers. Large bell-glasses, although very pretty when filled, are fortunately out of favour. They are unwieldy, and when it comes to selling them, have to be sacrificed at a loss. In fact, all large supers, of whatever description, have often to be sold at a loss compared with smaller packages. My opinion is more honey can be gathered by the bees when filling supers than when filling sections. There is no breaking of the cluster with dividers and bee-passages, consequently comb-building goes on quickly. Having transacted business in the Edinburgh and Glasgow markets for a number of years, I found that a super of five or six pounds sold the best, or one about ten pounds. With these sizes and the 1lb. section, the bee-keeper who intends to work for profit can find nothing better. Extracted or run honey should, as soon as taken from the combs, be strained through a piece of flannel or leno. It should be kept in a tall vessel with a tap at bottom. The thin watery honey comes to the top, which may be taken off and fed back to the bees. The honey should then be put in glass jars of a uniform pattern. Whatever style of package the bee-keeper uses, let him have all neat and attractive, as nothing looks so untidy as a lot of sections stained with

finger-marks and plastered over with propolis. Sections should be glazed or in holders, of which there are different varieties, and all supers should be covered with glass. The latter should have the weight of honey and the tare marked in plain figures. Glass jars should be labelled with the name of the producer, and if granulated to be all alike. A jar of thin watery honey among those granulated mars the appearance of them, and consequently hurts the sale. The bee-keeper should also keep in view the home market. Broken supers or damaged sections are best sold at a cheaper rate to our neighbours, and thus save any expense in fitting them for the market. Another point may here be considered, though not exactly connected with the marketing of honey, that is, competing at shows. In all national industries much of their success is due to healthy competition. Agriculture, cheesemaking, poultry, and other shows, have been instituted in order to bring together the best. The successful competitor strives to keep the laurels he has gained, and the consequence is that his sales are increased. This may also be applied to the bee-keeper. He must 'get his name up,' which will benefit him when he comes to selling terms. The honey merchant is only too anxious to secure a ticket for his window, 'First prize awarded to So-and-so for honey,' the result of which is a good advertisement for him. Lastly, let it be remembered that 'honesty is the best policy,' and those who deal clear and straightforward will find their business prosper. Their old customers will stick to them and new ones will swell the list, and thus be the means of the bee-keeper disposing of his produce to the best advantage.—W. McNally.

THIRTY YEARS AMONG THE BEES.

By Henry Alley.

Queen-Rearing.

(*Continued from page* 211.)

Something about the Rapid Growth of the Larva.—If you will examine the illustration (Fig. 7) you will notice in the left-hand cell a little white speck that represents a queen's egg, that is, an egg that the queen has deposited and not one that would produce only a queen. The white spot in the next cell is a larva about twenty-four hours old. The worm in the fifth

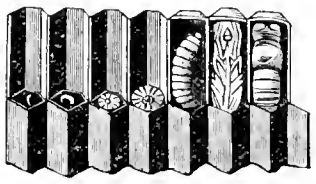


Fig. 7.—Growth of the Larva.

cell is about nine days old, and you will observe the cell is capped. At this age of the nymph the cocoon is spun. This is a very thin, paper-like substance which is left in the cell when the bee has emerged. It is supposed by some eminent bee-keepers that the size of the cells is reduced each year they are used. While this may be the case there is no perceptible difference between the size of the bees reared in them when compared with those reared in new combs.

This matter of daily growth of the larva brings up again the subject of starting queen-cells: The eggs for such cells should be laid at least eighty-four hours before they are used. That would be three and a half days, and just the number of hours to bring forth the minute larva from which a queen would be reared. If the cells are examined, a small, white substance may be seen at the bottom of each one that had an egg in it.

If these same cells should be examined in the course of six hours after the little white substance appears, a marked increase in its growth will be noticed, so rapid is the development from hour to hour. This fact should convince the thoughtful apiarist of the importance of having the queen-cells started as soon as possible after the minute worm or larva appears. If allowed to grow from six to twelve hours, of course it is nursed and developing all that time as worker progeny.

In all my experience I never knew of but one queen dealer who advised rearing queens from three-days-old larvæ, and that person was driven from the queen-rearing business on account of the inferior quality of the queens with which he supplied his customers.

Life-limit of Queens and Worker-Bees.—The life-limit of the queen-bee is not over two years, that is, her usefulness does not, as a rule, extend beyond that time, while that of the worker-bee, even under the most favourable conditions, is less than nine months, and that time includes the winter season.

These well-known facts seem to confirm the statements of the leading apiarists of the world regarding the proper time eggs should be used after being laid for starting queen-cells. It is the experience of all who have tested the matter that queens, reared from larvæ over a few hours old, are inferior and deficient in many respects of the qualities a choice queen should possess.

Time required to develop a Queen from the Egg.—To further illustrate this part of the subject, we will now suppose that the queen-cells have been sealed twelve days, and, of course, the young queens must be about ready to emerge from them. To make the matter so plain that all will get a clear idea regarding the time required from the moment the cells are started to the hour the young queens should appear, I will say that where the cells are commenced on a *Monday*, the young queens should appear one week from the following Friday, that is, provided the eggs from which the queens are reared had been laid eighty-four hours before they were given the bees. The cells should be sealed in ninety-four hours, and none should remain unsealed more than one hundred and five hours. In from one hundred and ninety-two to two hundred hours from the sealing of the cells every queen should emerge from them; and there will be no mistake about it, if the temperature of the brood-nest has been kept at the proper degree and none of the cells have been injured. This you see is figuring pretty close, yet by the system here given for rearing queens everything can be made to run like clock-work.

When to look for the First Queen.—I generally look, and usually find, the first young queen about 10 a.m. Now if this queen is not removed she would do a great deal of damage to the unhatched cells, or she would destroy the queens that would follow, as each succeeding one would be stung and destroyed in a short time after leaving the cell. The first queen to appear rapidly gains strength, and her weaker sisters as they emerge are easily and quickly despatched. Not only does the first one out destroy those that follow; she would, when there were no young queens to take her attention, destroy the cells by selecting those containing queens about ready to come out. This she does by opening the cell near the base and stinging the defenceless occupant. The bees then remove the wounded queen and destroy the cell.

When such a state of things is found no time should be lost in removing the remaining cells. They should be taken to a warm room and separated, each one being cut from the strip of comb on which it is built, as that piece should always be taken with the cell when it is removed from the hive.

The knife before described is used for all the operations about queen-rearing and should be warmed to make it do smooth work. A lamp is kept at hand for such a purpose. After the cells are detached, a portion

of the heavy wax-covering is removed. This is necessary if they are to be placed in the queen-nursery. The cells are laid one upon another to prevent them from chilling. Care must be taken not to expose any to the heat of the sun; should it strike them even for a short time the queens would be destroyed. The cells should also be handled with care, though pretty rough treatment to those containing queens nearly matured would not be likely to be seriously damaged.

Repairing Queen-cells Damaged while being Separated.—Occasionally when separating queen-cells, one is cut into, the opening is easily repaired by the use of a small piece of foundation. Cut it a little larger than the aperture, and after warming it in the blaze of a lamp, immediately place it on the cell, and with a warm knife smooth the edges down so that it will be air-tight. Unless this is properly done the bees will destroy the cell and also the queen in it.

The Queen Nursery and how to use it.—About the time the first queens should appear, the colonies, so far as numbers are concerned, are not, as a rule, strong; but if left undisturbed for about a week or ten days longer, will increase rapidly. Rather than make up nuclei under the circumstances to which to introduce the queens or cells, the queen-nursery is brought into use, and contains but eighteen cages, while the improved nursery contains twenty-one cages, and is much superior to the former in many respects. The cages are only small blocks of wood, cut to such dimensions that a certain number will nicely fill any style or size frame in use.

If you examine the single cage, Fig. 8, it will be seen that there are three apertures in it. One, the largest, is made directly through the block, while the others are smaller and in one edge of it. The largest hole is covered with wirecloth and is a sort of chamber for the queen and bees.

Fig. 8.

One of the smaller apertures is for a queen-cell, the other for the food. The food may be the same as is used in mailing cages or honey in a piece of sponge. I rather like the honey and sponge the best. If honey is used, it should be about one-fourth water. Wet the sponges in the honey and then squeeze out the surplus so that none will run into the cage and injure the queen.

As the base of the cell after being trimmed just fills one of the apertures in the edge of the cage, there is no danger of any slipping into it, yet as the novice may have some trouble to make them stay in place, a small tack might be driven through the side of the cage far enough to have the point protrude through about an eighth of an inch; that would hold the cell securely in place.

Preparing the Cages for the Reception of the Cells.—I usually get the nursery cages ready before removing the queen-cells from the hive. The preparation consists merely in filling the sponges with food and placing them in the cages. When the weather is cold the cages should be warmed to prevent any danger of chilling the queens.

(*To be continued.*)

SPRING WORK—FEEDING—UNITING.

I do not feel so lonesome now in the *British Bee Journal* since our Scottish cousin has spoken in meeting, and given a bit of her experience. Suppose 'there is not just very much to tell,' just tell it, and it may encourage some timid bee-culturist to be moved by the spirit, and we shall soon have something more lively than a Quaker meeting—a real old-fashioned Methodist experience meeting, only the experience will relate to bees. When I was a novice in bee-culture, I was very much in earnest and determined to succeed, and hungered and thirsted to find the way that others had found which had led them to success. Then a bit of experience was eagerly devoured and rolled like a sweet morsel under my tongue, as it helped me to find the way. At one time, in my early days of bee-keeping, I wanted to make an artificial swarm, and with that end in view looked up directions in my bee books. What appears so laughable to me now was a great puzzle then—it was this: 'Take two combs of brood from large colonies until you have enough to form a colony.' What puzzled me was, whether I was to take bees along with the combs, as the directions in all the books I had did not mention bees. The authors, I suppose, inferred that anyone of good sense would know that brood could not exist without bees to nourish it. The directions also told me to put empty frames in the place of those removed, and I found to my sorrow that these frames would be filled with drone-comb. I was so fearful that my bees would swarm and run away that I kept continually taking away brood from them, forming new colonies. I got little or no honey, but I was getting *experience:* in the old spelling-book in which I was taught to read at my father's knee was this, 'Experience keeps a dear school, but fools will not learn in any other.'

Spring Work.—Spring work in the apiary is the rock upon which I wrecked my craft. Early in the spring I would lift out a colony into a clean hive, and then with scrubbing-brush, soap, and boiling water, thoroughly cleanse the hive to remove another colony to. There was plenty of hard work in this moving business, and loss: the babies caught cold, and it would be some considerable time before the cluster regained the warmth they had lost. When the bees had diarrhœa I would clean them up, putting them into clean hives, confining them to a small space in the centre of a hive, with division-boards and packing each side, but they died '*allee samee.*' Now I do all my spring work in the fall: have good strong colonies, with plenty of stores, and they can clean their own house, and do it much cheaper than I can. If a colony dies from any cause, I thoroughly cleanse the hive before I use it again.

Feeding.—In this climate, feeding to promote early breeding is many times an injury. It excites them to greater activity, and they fly out in inclement weather in search of water and perish. More young bees may be reared by feeding, but at the expense of the lives of the old, which are worth the most to the commonwealth. It is better to see in the fall that they have an abundance to last until flowers bloom; if from sickness, or any other cause, the bees were destitute in the spring, I would feed rather than let them starve. In some localities in the interregnum between the blooming of fruit trees and white clovers, there is a dearth of honey, and it pays big money to feed them; when I see them chasing drones at this season the feeders are put on, and they are fed until the feeders are neglected, which will be as soon as there is honey in the fields.

Uniting in Spring.—I have tried uniting, but I am compelled to own that it did not pay, especially with diarrhœtic bees. In early spring I have put six small colonies together, and in a few days the united colony would be as small as the individual ones were before uniting; had I let them alone, several of them might have pulled through. I have given combs full of brood to weak colonies, and it did little good, and have gathered up handfuls of downy bees and given them to weak colonies; all this did little good to the weak, but resulted in much harm to the strong ones. Now, if I wanted to stimulate bees in early spring, I would feed the strongest colonies I have and let the weak alone. It is something like this: A Dutchman and his wife were working together in the harvest field binding grain; it was in the old days, when this was done by hand. The man got

through first and was resting, when his employer said, 'Mike, help out your wife.' He said, 'Let her alone, she comes out all right.'—Mrs. L. Harrison, *Peoria, Illinois.*

IRISH BEE-KEEPERS' ASSOCIATION.

The Committee met on 7th instant. Present, Mr. Milner, in the chair, Mr. Read, and the Hon. Secretary, Mrs. Magill, of Churchtown House, Killarney, was appointed District Hon. Secretary for Co. Kerry.

GOOLE AND DISTRICT BEE-KEEPERS' ASSOCIATION.

The Committee of the above branch held a meeting on Tuesday evening, the 7th inst., in the Schoolroom, Christ Church, Goole. The Secretary laid the various price lists of appliance-dealers and other correspondence before the committee, and it was decided to purchase what members required from Mr. Howard of Holme.

At the general meeting which followed the above, the Secretary informed the meeting that he had received a donation of ten shillings from Mr. J. Austin, M.P., towards the Association funds. A letter from Ald. R. S. Scholfield, Esq., J.P., was also read, in which Mr. Scholfield consented to become president of the branch, and explained his absence. The usual official business being over, two short papers were read, the first by Mr. Wise on the Production of Comb Honey, and the second by Mr. Woodhead on Storifying for Extracted Honey. These papers were patiently listened to, and were evidently enjoyed by those present, but we think the former would have had a more appropriate title for his paper had he entitled it 'The Production of Honey Comb.'

Illustrated Lecture on Bees and Bee-keeping.—Mr. Alfred Watkins, of Hereford, delivered an interesting and very practical lecture on the above named subject in the National Schoolroom, on Friday evening week. The Rev. J. S. Crook (vicar) presided, and there was a very good attendance of farmers and other persons interested in bee-culture. After describing most minutely the physiology of the bee, the lecturer proceeded to speak on the importance and remunerativeness of bee-culture, giving much useful advice on the newest and most improved principles of bee-keeping. The lecture was illustrated by numerous photographs of the Swiss valleys, bee specimens and appliances (old and new). These photographs were exhibited in the bee-keepers' department of the Royal Agricultural Show at Nottingham in 1888, and the lecturer received the bronze medal of the Society. The lantern arrangements were admirably carried out by Mr. John Jones, Weobley. After the lecture there were also exhibited some excellent photographic views of ancient buildings at King's Pyon, Weobley, and Mansell Lacy. A vote of thanks to Mr. Watkins was proposed by Mr. John Griffiths, and seconded by Mr. John Jones. Subsequently a vote of thanks was proposed to the chairman by the lecturer, and to Mr. John Jones for his valuable assistance with the lantern. Mr. Watkins has also recently given lectures on bee-keeping at the Free Library, Hereford (to the Hereford Debating Society), and at Withington and Byford schoolrooms.

A Horse Stung to Death by Bees.—A correspondent writing from Brisbane reports a most unusual street scene through the escape of several hives of bees. The hives were being conveyed in a cart along Bayswater Road when one of them got knocked over. The bees scattered about right and left, but most of them commenced an attack on the horse which bolted. After running some distance the animal fell and fractured its fore-leg. All the hives were then upset and the insects made a combined attack on the prostrate animal, which was stung to death as it lay upon the ground.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to Mr. J. Huckle, Kings Langley, Herts (see 2nd page of Advertisements.)

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of April, 1889, amounted to 6231*l.*—[From a return furnished by the Statistical Department to Mr. Bellairs.]

LIGURIANS *VERSUS* CARNIOLANS.

[2074.] I should very much like to see a few opinions of amateurs, who have tried the above side by side, as to the comparative merits or demerits of either as bees for the amateur. At present, to judge by the prices asked for Carniolans, and the loud praises bestowed on them by dealers, it would seem there is no bee to come near them. But yet they are no quieter to handle than Ligurians, or, indeed, than some English stocks. They seem to be *favoured* (?) with just the same diseases as other races. They gather honey no better than Ligurians, or even than some English hybrids. *But they swarm immoderately.* The writer of (2067) is not alone, and this last year's lots have had similar experiences. Indeed in the description of the race (p. 174, present volume, last line) it states clearly what purchasers have to expect. It is not a pure race, though during the last hundred years or so the markings have been fixed. Recent writers say they are either a cross between Cyprian and German, or Ligurian and forest bees. Granted fresh blood is a necessity, why develop in our own race the already too pronounced propensity for swarming?

Now the good qualities of Ligurians, given by the very highest authorities on the subject, are, they are very prolific; make few queen-cells, and consequently swarm moderately; have a habit of raising young queens when the old ones seem to show signs of being worn out, and only superseding them when the young ones have begun to lay properly, thus allowing no break in the hive; are quiet to handle; winter well; are the first to begin and the last to leave off working; and, as a consequence, are splendid honey-gatherers. In America they will have nothing to do with Carniolans because they build too much drone-comb, raise too many drones, raise too many queens, and, as a consequence, swarm so. *Why should we?* Does it not seem as if Ligurians do not go down well with raisers and dealers from the fact of their raising so few queen-cells? To sum up I think what appeared in Mr. Neighbour's book in 1878 is quite as applicable now as then: 'The question as to the worth or worthlessness of the respective varieties comparatively recently introduced is not yet so decided a matter as it is with the Italians, and those interested in the sale of a particular race will praise it up.'—Jersey Bee-keeper.

SHALLOW FRAMES, EXCLUDING HONEY BOARDS, &c.

[2075.] Last year I decided to try shallow frames, and obtained 100 from Mr. Howard, Holme, Peterborough. They were six inches deep, and, like all frames from the above house, dovetailed, so that they are easily and

exactly put together. Full sheets of foundation were worked out in nearly all, so that the combs were all new, and excluders kept them free from brood. Some few were fitted with odd pieces of drone-comb, which had been removed from elsewhere before being bred in. Others, by a method which I will describe in another article, were fitted with odd pieces of foundation. Several frames had more than a dozen such pieces, and the combs would need a more than cursory glance to find the joins. The shallow boxes were double-walled on two sides, chaff-packed. Other hives had doubling boxes with excluders, and so the two were tested side by side in a year that was, on the whole, a poor one. The honey flow was chiefly from middle of May to middle of June, and the extractor was at work as soon as the combs were sealed. Some of the combs had small quantities of pollen, but as a rule they were free from it, and looked more beautiful than many sections I have seen. Those hives with shallow boxes beat the 'doublers' in the yield of honey, even when other things were equal (so far as one could judge). I shall repeat the experiment this year. I may say that already I have some new honey stored in 'shallows.' From actual experience I find shallow frames offer the following advantages:

1. There is less risk in putting a shallow box on early, if weather should afterwards turn colder.
2. The bees take to them more readily.
3. The comb, being fixed on all sides of frame, is not likely to be broken in extracting.
4. The comb is completely sealed sooner, and therefore extracting may begin sooner.

Queen Excluders.—After using these I would not willingly go back to my previous plan of doing without them. With them you have slabs of honey above and compact masses of brood below, even to the top bar of frame. When the queen is allowed to roam at will, there are a number of frames partly brood and partly honey, and they cannot be extracted from without being at once replaced, whereas with an excluder the frames may be replaced at any convenient time. In addition, the production of useless brood towards the end of the season is limited. The higher price of honey from uncontaminated combs will more than pay for the excluder; at least, such is my experience. I find that honey boards are not always made to fit even well-known hives, nor the hives to take such a board, if desired. This point might be noted in future prize schedules.

Of *super foundation* the thinnest and most beautiful which I have seen is that made by Mr. Howard, which, besides being 'British,' entirely removes that objection in comb honey, viz., a thick midrib; while his method of fixing full sheets entirely prevents popholes.—THOS. BADCOCK, *First-class Expert.*

WASPS AND BEES IN BAR-FRAME HIVE.

[2076.] My friend and bee-partner, Mr. Tonge, having noticed a queen-wasp enter the roof of one of our hives through a hole left for ventilating over frames, called my attention to it. I lifted the top up, for the purpose of killing her, when, to my surprise (and also my friend's), we found that she had formed a most beautiful nest. We both agreed that we had never seen anything so perfectly and beautifully formed. In shape it resembled an acorn more than anything I know. The upper portion was formed like a dome, and joined at the top to the hive by two small stays, while the nest proper was immediately under shelter of the dome. I have got my friend Mr. F. W. Goolden to take sketches of it, which I enclose. The queen-wasp has only been a week at work. A week since I brushed the hive well, both inside and out, to clear it of dust, dead bees, cobwebs, &c., and there was no trace of nest then.

As we so seldom have an opportunity so favourable for witnessing the growth and development of objects of this kind, I think it would be a pity not to make the best of it. I have consequently decided to put the bees in another hive on the present stand, and to remove the hive and wasps by degrees to another part of the garden, where they may dwell undisturbed, and to measure and record its growth from week to week. I should like to know, through the medium of the *British Bee Journal*, whether there are any of its readers who would care to hear of the progress of this highly interesting natural object, providing the Editor approves of the idea, and can spare space.—C. C. MOORE, *Altrincham, May 13th.*

[The development of the nest will be interesting to our readers, and we shall be pleased to furnish space for your future communication. The sketches enclosed we retain for the present.—ED.]

Echoes from the Hives

Kendal, May 3rd.—There is a comparative dearth of apiculturists in this neighbourhood. No honey at all was got last year, and a good many stocks have perished in the winter.—BIENE.

Sunderland, May 6th.—Since my last echo we have had a great deal of weather depressing alike to bees and their masters, interspersed fortunately with bright, warm days, when the bees came in laden with pollen, and about the hives quite the 'summer buzz' is audible, as a friend of mine remarked. Such a day was the 30th of March, after which we had about a fortnight of cold, wet weather, which improved, and a considerable quantity of sealed stores, some of which I uncapped. I am now feeding with syrup, and hope to have all my hives 'boiling over with bees' by the end of the month. I believe that my bees are the only ones in this neighbourhood which have survived the winter; the others—some four stocks, belonging to three different individuals—having all died, entirely, I expect, owing to want of proper management.—F. GAYNER.

Small Heath, Birmingham, May 4th.—At last May has come. Oh, how we watch for the bees bringing in the pollen, as it seems to tell us they are all alive! I had a peep at all my stocks on Saturday last, and found them very much better than I expected, the Carniolans especially. Skeppists for miles round here have suffered terribly for want of food. I called on several of them last autumn, and cautioned them, but it seems to have been no good, as they say they never had to feed them before, and they were not going to start. But now they see their folly. To those whom I could not visit I sent a post-card, imploring them to feed before too late; but the result is 'All dead' from every quarter.—F. HIRST.

Blandford, May 11th.—I took a splendid swarm of bees to-day for Mr. Gaulton, of St. Mary's, Blandford; and as this is undoubtedly the first natural swarm in this district I thought your readers would be interested. I had two swarms (?) reported to me the day before Good Friday, but they were evidently poverty swarms, *i.e.*, driven out by starvation; they could not be natural so early in such a season. Natural swarming usually commences here about the last week in May. There may be one here and there before that, but those are very early. This has been a most disastrous season, scores of stocks having died around here. I am glad to say I have been fortunate enough to save all mine, twenty-two stocks. I think we have now a good outlook—the prospect is very good; and unless we get a change for the worst we shall have a very good season.—ALSFORD EXPERT.

Needingworth, St. Ives, Hunts, May 11th.—As we are now fairly through the winter I thought it might interest you to know how the bees are doing here. They are rather backward this spring, as April was so sunless, but have done well since May set in. I saw new honey in some of mine a week ago, in some sections of empty comb I had put in a few days previously next to the

frames—shall have to super them next week. The losses have been very heavy here. There are six other bee-keepers besides myself who attempted to winter amongst them thirty-two stocks, and have only succeeded with nine. I tried to winter fourteen, and have succeeded with them all at an expense of eleven stone of sugar. If they don't get out of debt this year I shall give up bee-keeping.—St. Ivian.

Odcombe, Ilminster, May 11th.—This month has not as yet been very favourable for the bees in this neighbourhood, as we have had only three really fine days for work. By constant feeding I am getting all my stocks into good condition, several of them having twelve frames each, ten of which are filled with brood, and from these hives I hope to strengthen weaker ones, so as to get them all with an average of ten frames of brood by the time the honey flow arrives, which will not, I think, this season be until the first or second week in June, everything being very backward. With regard to the question of drone brood I think it quite a mistake to endeavour to keep any hives free from it. I generally allow them an amount equal to one frame, and encourage them in rearing it by placing some of the finest drone-comb I have by me in the centre of the brood-nest when I commence spreading the brood, with which they appear quite contented, and drones are flying early. The evidence appears very conflicting as to the benefit, or otherwise, of using excluder zinc between hives and sections. For my own part I have never used it, but usually super with twelve bar-frames, two or three of which I take from the body of the hive full of brood, and insert in their place empty frames or foundation, which gives the queen sufficient breeding space, and if honey is coming in plentifully I get very little, if any, brood in the super frames. In supering for sections hives that are full of brood I also remove two or three frames of brood and replace with empty combs. The brood removed is very useful for strengthening weaker stocks, or forming nuclei for queen-rearing. The queen, having plenty of room in the brood-nest, will not go into the supers to seek empty cells. I think this plan also checks to a great extent the desire to swarm.—J. Sarell.

Beckenham Lodge, Beckenham, Kent.—I beg to inform you that I have a swarm of bees to-day, Tuesday 7th. Many thanks for your useful instructions in your valuable *Journal* on bee-feeding.—James Ottaway, *Gardener to Mr. MacArthur.*

Belfast, May 9th.—Since the 5th inst., we have had splendid bee-weather, although yesterday was chilly, and the bees were taking advantage of the fruit-blossoms, which are late this year. The number of stocks that have perished is very large in this district, some parties having lost all where they had only a few stocks, and I have suffered severely also, but will write you fully later.—Paul McIlenry.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Query.—Would you be kind enough to say in next week's *Bee Journal* what you think is the reason the queen (inclosed) is not laying? I may tell you I have been in the habit of raising young queens every season, but have never had a young queen without laying before till this one. She looks so very much like an old queen, and I think looks rather swelled about the body, and perhaps you may think she is an old queen, but I do assure you she was bred last year.—J. Luck.

Reply.—The examination of this queen-bee has been a source of considerable perplexity. The ovaries were found of full size, perfectly white, and in thoroughly healthy condition, and the oviducts were perfect throughout. They contained some eggs, apparently passing down. The spermatheca was of usual size, and fully distended, but below it was a congestion of eggs, say, fifty to one hundred, which in the ordinary course should have been successfully expelled. None of them seemed fully mature, but the ovipositor was not injured, except accidentally with one of my needles. I next dissected out the spermatheca, and having laid it on a slide with a drop of water, crushed it by pressure, and proceeded to examine the expressed contents. To my surprise, instead of finding spermatozoa of normal shape and dimensions in the usual innumerable quantities, the whole mass seemed instead to consist of an infinite number of extremely fine threads anastomising in every direction, but all in an active state of undulation. They seemed to originate from apparently amorphous patches, but no end could be discovered to any, although individual threads were traced for long distances, say, twice the length of the field view with a B Kellner eye-piece × 300. The whole effect was as bewildering as looking for an hour at a chromatrope, and bid fair to induce a sick headache. About two hours later the motion slowly ceased, the masses partly disintegrated, and a few normal spermatozoa could be found here and there. There can be little doubt that this imperfect condition of the contents of the spermatheca prevented the eggs from being properly fertilised, and may possibly have had something also to do with their not being afterwards expelled. What the original cause of the peculiar condition described might be, I cannot venture to guess. I examined with powers up to × 525.—R. T. L.

Geo. Lake.—1. *Best Hive to Use.*—Any medium-priced Association Standard 'tiering up' hive will give you good results if the attention bestowed is properly applied. 2. *Paragon Hive.*—This hive has only just been introduced. We are not yet in a position to speak of the advantages put forth of it by its manufacturer.

J. Waine.—1. *Transferring.*—This can be done now on a fine warm day; feed well afterwards. The racks must not be put on until the bees have filled ten frames with comb and are crowded on that number. 2. *Modern Bee-keeper near Altrincham.*—Mr. E. G. Parker, Bloomfield Lane, is one of the committee of the Lancashire and Cheshire Bee-keepers' Association. He, no doubt, would give you any information.

Delta.—*Foul Brood.*—The comb sent is not affected with foul brood. You no doubt have a queen that is of little use. You had better unite to another colony, as those, if you keep them separately, will be of no use this season.

Amateur.—*Dividing.*—When the bees in your two hives are overcrowded, on a fine warm day at noon remove all the combs with brood, &c., from No. 1 hive, shaking the bees back into the hive on sheets of foundation or empty combs (the latter preferably): the combs removed from No. 1 are to be placed in a fresh hive, then move No. 2 hive some distance away, say eight or ten yards, and place the fresh hive in the same position No. 2 was removed from. The bees flying at time of removal from No. 2 will return to the fresh hive and rear the brood and a new queen.

F. Gayner.—*Do Bees convert Sugar Syrup into Honey?*—No. Why do they not do so? Because they have not the power to convert the expressed juice of the sugar-cane into the aromatical nectar produced in the innermost recesses of flowers.

R. Greenwell.—*Infested Combs.*—Send a specimen piece in a tin box, so that it does not get crushed.

W. J. B.—1. *Moving Bees from damp to dry Hive.*—You did quite right. The mildew on combs has been caused by the damp, such portions not having been covered with bees during the past winter. 2. *Feeding while Sections are on the Hive.*—You must not do this, or the bees will store the syrup, instead of honey, in the sections. 3. *Artificial Swarming.*—Whichever suits you best, but upon no account attempt dividing until the season is more advanced and the bees *over-*

crowded upon ten frames. 4. *Finding Queen.*—The queen being a totally distinct-looking bee from any other in the hive, a novice having ordinary eyesight should be able to find her. Cannot you get a bee-keeping friend to assist in pointing her out to you? After you have once seen a queen it will be a comparatively easy matter for you to detect one.

J. Kidd.—*Variety of Bee.*—The bee sent was an ordinary English black. If you are successful with the bees you have, do not change the queen: but a good cross, as with all other live stock, is advantageous.

Inquirer.—*Last year's Sections.*—As these sections have been carefully packed during the late winter, they will prove serviceable during the present season.

W. G. S.—*Bees and Manure-heaps.*—If you furnish your bees with with water and salt, few of them would resort to the manure-heaps. The amount taken by your bees is so inconsiderable that it would have no effect on those in the hive.

W. H. Ley.—1. *Pollen Combs.*—The combs containing the pollen should be placed on the outside of the nest, and the bees will remove the pollen, and prepare the cells for the reception of brood. 2. *Queen.*—From your description we should say that your queen is a pure English black queen.

J. D. R.—*Capped Brood.*—All the capped brood is worker. There is no means of telling what sex the unsealed may be. Possibly the queen, being full of eggs, may have been compelled to drop her eggs anywhere.

F. W. Wright.—The bee forwarded is aborted; it has lost one of its under wings, and consequently, as you observe, it flew heavily. The bees noticed are most probably similarly affected.

M.—*Foul Brood.*—The comb forwarded has an unpleasant smell betokening incipient foul brood. The interiors of the capped cells are either drying up or have dried up.

D. D.—*Island of Bute suitable for Bee-keeping.*—Yes; Bute ought to be well adapted for bee-keeping. Arran, the adjoining island, has some bee-keepers residing on it, and annually there are a lot of hives taken from Ayrshire to the heather on that island. During the spring and early part of the season there might be more honey gathered by having the bees located on an early Clyde district, or near to Largs, and then transport the hives to Bute during the heather season. Experiment with a few hives at first, and see how they will do right through the season.

W. J. S.—1. *Non-Swarming.*—The brood nest is reduced in order to cause an excess of bees as compared with *built* combs, in order to induce the bees to go up into the sections, thus taking advantage of their natural instinct to store honey *over* their brood. The idea is that while the fresh frames with starters only remain unfilled with comb the bees will not swarm. Although no rule is invariably correct, no more trustworthy system has yet been devised. Therefore, the bees must not be allowed to fill the frames with comb. As the bees build it, cut it out just to fit a section, and place it at once over the brood-nest. Do not let it be used by the queen laying eggs in. You could divide as you suggest, but that is not the non-swarming system. If you wish to prevent swarming you must be always beforehand, and not wait until the bees even *think* of swarming. This contraction of the brood nest should take place before all frames are full of brood. No delay should arise in supering, or you will certainly have comb built in the empty frames. 2. *Strengthening Nuclei.*—We prefer giving a frame of hatching brood in preference to adding bees. This, if well filled, will give about 4000 bees of just the very best bees, and there will be no fighting. 3. *Requeening.*—You cannot guarantee that the progeny of your proposed new queen will be pure unless she has been fertilised in a district where no bees of any different variety are kept within, say, seven miles or so.

F. W. Wright.—The bees sent certainly appear slightly hybrid. We should not trust to a queen becoming fertilised that has been hatched more than a fortnight.

Middlesex.—1. *Supering.*—As your bees only occupy four frames, you should not attempt to super them. A bee-space ⅜ in. should be left between the two lots of sections. We prefer close sided racks. 2. *Water.*—Bees will not always take to the water provided, but if you strew a good quantity of cork-dust (from grape barrels) on the water, they generally appreciate the damp surface in preference to a sheet of water. 3. *Stimulating.*—Artificial pollen is not necessary so late in the season, but a little warm syrup would greatly encourage breeding, say, ¼ pint *every evening.* Be regular with it if you desire success. 4. *Transfer to clean Hives.*—Do it at once, it is full late now. *a*

G. Barthrop.—1. *Supering.*—From your description you would have done better to have left the super on. They will choose their own time. 2. *Dead Grubs.*—simply a case of infant mortality. *a*

Bee Exhibition at Melrose.—We have received from Mr. Thos. B. Gibson Carmichael, of Chiefswood, Melrose, N.B., a copy of a circular which he has been sending round to persons in his neighbourhood, and to others interested in bee-keeping. He desires to erect a shed, with an area of about 1200 square feet, for the display of specimens of appliances. The chief aim of the exhibition will be to prove a means of practically illustrating the best modes of bee-management for the benefit of the working classes. Comparatively few from the district of Melrose will have an opportunity of visiting the apiarian show at Windsor this year, Mr. Carmichael therefore would appeal to those who can help to render the exhibition at Melrose as complete as possible; especially would he like the loan of specimens illustrative of bees and bee-keeping abroad. If Mr. Carmichael's arrangements meet with the encouragement he hopes to receive, the exhibition will take place at Melrose during the approaching summer.

Received from Messrs. Neighbour, of 127 High Holborn, their Illustrated Catalogue of Bee-keeping Appliances, 64 pages.

We have received from the Hon. Sec. of the Ulster Bee-keepers' Association a copy of its Annual Report: this we have given in previous issues. The Report contains several essays which will be found very serviceable to beginners in bee-keeping.

PATENT RECORD.

17971.—T. B. Blow, Welwyn: Show Cases for Section Boxes of Comb Honey, December 31st, 1887.

SHOWS TO COME.

Bees, Hives, Honey, etc.

June 24-29.—Royal Agricultural Show at Windsor. Entries closed May 1st. Secretary B.B.K.A., J. Huckle, Kings Langley, Herts.

Business Directory.

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THE *British Bee Journal* is published by KENT & Co., 23 Paternoster Row, and may be obtained of all local Booksellers, and of the following Agents:—

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NOTE.—Members of the L.B.K.A. are entitled to exhibit at the Agricultural Show (Louth, July 23rd, 24th, and 25th) at the same rates as Members of the B.B.K.A.

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RE-ORGANIZED 1889.

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*** *Copies of the Rules and every information may be obtained from the Hon. Secretary, the District Hon. Secretaries, or any Member of the Committee.*

THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.'

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Editorial, Notices, &c.

THE LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.

Last week there was to be seen in the columns of our *Journal* an advertisement to which is due more than an ordinary passing glance. We refer to the announcement of the re-organization of the Lincolnshire Bee-keepers' Association. Are we to hail this as a promise of the *meliora* to be looked for not only in the history of the Lincolnshire, but also in that of other County Associations? Are we justified in arguing from this that those County Associations which have been allowed to decline will in the near future be reconstructed on a surer and broader basis? We trust that it may be so, and that an electric thrill may pass through the Associations, quickening them to restored vitality and renewed vigour.

At the founding of these Associations the example of one society quickened others,—the Metropolitan Exhibition at the Crystal Palace in 1874 was witnessed by Mr. Godfrey, and a desire arose in his mind to initiate a similar show among his neighbours and friends at Grantham. He carried out his idea, and an exhibition of bees, hives, and honey, was attached to the South Lincolnshire Horticultural Show at Grantham in July, 1875, and this proved most attractive and successful. The success of the Grantham show awoke the spirit of Mr. C. Tite, then of Yeovil, who gave his assistance by formulating for the guidance of the County Associations some most valuable suggestions, and also offered to co-operate with bee-keepers in Somerset or Dorset in trying the effect of these suggestions. Mr. Tite's example was speedily followed by Devon, Sussex, Hertfordshire, and others, and soon it came to pass that in almost every county an Association sprang into existence. But this spirit, so fervid and so active, has in a great degree passed away, and the position of many of these County Associations is at present the reverse of exhilarating; and therefore it is that we hail with joy the reconstruction of the Lincolnshire Association, and consider it as a promise that the desire for a renewed activity and a deeper insight into the mysteries of bee-keeping is once more spreading through our counties, and we hope that we may see in it that

> 'There is a tide in the affairs of man
> Which, taken at the flood, leads on to fortune.'

It is time that the apathy or indifferention that has of late prevailed in many of our Associations should be dispelled. Many of the most active and flourishing have fallen into decadence, and some have passed out of sight altogether. It would almost seem that the rise, decline, and fall of these societies were in a measure conterminous with the life of the late Rev. H. R. Peel. Into the foundation of these societies he cast all the energies of his ardent soul, he infused into those with whom he came in contact a portion of his own enthusiasm; and before he closed his days there was a marked progress in achieving what had been the dominant aim and object of his life, that there should be a Bee-keepers' Association in every county of England. At the time of his death we remember to have asked these questions: 'On whom will his mantle fall? Who will advance to the front, and occupy the void now created? Who will continue to raise the superstructure on the foundation that has been so wisely and elaborately laid by Mr. Peel? We must all hope and work on; the future of bee-keeping lies before us.' It would indeed be disheartening if the work so bravely and self-denyingly begun should not be carried out into accomplishment. We hope, therefore, that the present example of Lincolnshire will not be without results, but will arouse and quicken many of those counties which were once bright examples, alluring others to follow in their footsteps, but which have of late suffered themselves to lie among the fallen.

We do not include in the above remarks all County Associations. We are pleased to be able to testify to the good and hearty work that is being performed by several of them.

We desire to congratulate the Lincolnshire on the broad basis on which the new Association is founded, and that it has such a goodly array of eminent men willing to render it all the assistance that it may require. We hope that a bright future is before it. Lincolnshire is a grand county to carry out the work of bee-keeping; and it is an extensive one. It contains 1,671,040 acres, of which about 1,465,000 are said to be arable, meadow, and pasture. Lincolnshire is naturally divided into

the districts of the wolds, the moors, and the fens. It has shown its capabilities in the past for the production of honey, and the number of competent and practical bee-keepers that it has produced has been great. We regret that the stream of the first Association has been lost in the quicksands, but its work has not quite passed without result, it has cleared the way for that of its successor; for, we may say in the language of Dr. Bartrum in reference to Mr. Raynor, 'All that is good is immortal.'

SALE BY AUCTION.

We are informed that the apiarian effects (with poultry, &c.) of the late Rev. G. Raynor, will be sold by auction at Hazeleigh Rectory on Thursday, the 30th inst., at 2 p.m.

USEFUL HINTS.

Weather.—Since writing our last 'Useful Hints' the weather has been very disappointing to bee-keepers; much of the period has been wet, at times a decided downpour, and, worse than all, there has been a decided fall in the temperature. All stone-fruit blossom is now over, and but little of it could have been visited by the bees except during a very few days. The apple blossom, which is very plentiful, is fast approaching the shedding time, and still the weather is dull and damp, with anything but a high temperature. Hawthorn shows well, and if we could only get warm sunshine now, some surplus should be gathered by strong stocks.

Feeding.—This should still receive strict attention; no colony should be allowed to even feel its stores beginning to run short, or breeding will be checked and the after prosperity of the hive jeopardised. Very few bee-keepers have any recollection of such a trying winter and spring for stocks as those just past have been, and all preconceived calculations as to sufficiency of stores have been upset.

Swarms.—Where these are permitted to rise every care should be taken to ensure their speedy recovery, and if they are fed gently every evening, such progress will be made as to leave unfed swarms completely behind. Swarming out and decamping will very seldom occur when the feeder is kept supplied. Otherwise starvation will sometimes move them to seek fresh fields and pastures new.

Artificial Swarms.—These, being more under control, should only be made at such times as everything is quite favourable. Doubtless owing to the very great dearth of bees this season, some will endeavour to unduly increase their colonies. Here again feeding will be of essential assistance, for it must be remembered that brood-rearing is a tax upon even a strong stock if at all forced, and therefore the strain upon, say, a three-frame nucleus is so in a far greater degree. To those who have the time to attempt making a considerable increase we should recommend devoting several colonies to increase entirely, and let others be left undisturbed to gather surplus. Taking all things into consideration, we believe that honey will not pay so well as increasing colonies, either for sale during this season or next spring, because the loss has been so heavy and general that it will take several years to get bees as plentiful as they have been.

Queen-rearing.—This portion of our season's labours should receive our most careful attention. Although we cannot absolutely control the mating of our young queens, still we should not relax our vigilance in regard to any of the surroundings we can control. Both drones and queens should be raised only from such stocks as exhibit in the strongest manner the peculiar characteristics we desire to perpetuate. Again, we should not allow too many queen-cells to be occupied at one time in one colony; neither should we omit to give the queen-raising colony a comb of hatching brood, say, two or three times during the period they have no queen; it will tend to maintain the vigour of the community, but we should avoid as much as possible any undue disturbance of those frames on which queen-cells have been built. Should we have adopted Alley's method we shall have no difficulty on this point. It is of vital importance that a stock engaged in queen-rearing *must* have a sufficiency of food during the whole of the period, or many of the cells will be destroyed, and those queens which do arrive at maturity will be other than the best.

Wasps.—These are apparently not numerous this season. We accomplished our first 'kill' on the 19th. Need we remind our readers to keep a sharp look-out for them?

Foul Brood.—This appears to be one of the perpetual troubles of bee-keeping. The chief difficulty lies in the fact that although all the bee-keepers save one in a district may take every precaution to eradicate the disease, that very one, either by his negligence or stupidity, may again poison the whole district. Can any of our readers say whether it is a legal offence to sell bees suffering from foul brood even when no guarantee is given?

Much obloquy has been cast upon expert work on account of some unprincipled men ignoring even the most rudimentary safeguards. We say most emphatically that it is unjust to thus condemn experts as a body for the sins of the few, but we do desire some means of so dealing with the black sheep that they may for ever afterwards be prevented from demoralising that which is a most honourable calling when properly conducted. We have reason to believe that some of these black sheep positively conceal the fact of foul brood being in existence lest they might lose custom. Was there ever a more short-sighted policy? Could the Committee of the B. B. K. A. consider this question in all its bearings?

Promiscuous driving in the autumn is a fertile cause of the wide-spread continuance of this disease. For full particulars to cure and prevention of foul brood see pages 145 to 152 of *Cowan's Guide*.

BEE-KEEPERS' VOCABULARY;

Or, Glossary of Technical and Scientific Words used in Works upon Bee-keeping.

Clamp. *n.* (*Sax. clam*, a bandage.)—Something that stiffens, fastens, binds, or strengthens; a moveable piece that fastens two or more moveable parts together; a piece of board or batten put across a board to strengthen it; hives surrounded by straw, placed close together and buried beneath the level of the earth, a mound being raised above them sufficient to preserve against extremes of heat and cold; boxes and frames piled together and arranged so as to be covered with an outer case. (Am.)

Claws. *n. pl.* (*Sax. claw.*)—See *Anguiculi*.

Cleansing flight.—The flight of bees after long confinement in their hives in order to void their fæces; removing bees from cellars that they may fly.

Clipping queen's wings.—Cutting off about one half of the front primary wings after a fecundated queen has commenced laying. This is done by some bee-keepers to prevent the queen from flying away with a swarm.

Cloaca. *n.* (*L. cloaca*, a drain.)—The small cavity at the extremity of the abdomen into which the intestine opens, and in which also are the ducts of the generative

organs, the ovipositor, and sting. The external is the *anal* opening, q. v.

Close driving.—In this method of bee-driving the empty hive is placed on the one containing combs and bees, the junction between the two being closed by tying a cloth or towel round the two hives in such a manner that the bees are not able to escape. See *Bee-driving.*

Closed end frames.—Frames having wide side bars which touch each other, while the centres retain the proper distance apart.

Close frames. See *Broad-frames.*

Closed top Frames.—Frames having wide top bars which touch each other.

Cluster. *n.* (*Sax. cluster, clyster,* a collecting together, a bunch.)—A mass of bees hanging on the one to the other by means of their claws; the compact mass into which the bees of a colony form themselves during a fall of temperature or in winter.

Cluster. *v. intr.*—To collect together in a mass; to collect into a cluster.

Clustering. *ppl.* or *a.*—Uniting in a bunch, cluster, crowd, or close body.

Clypeus. *n.* (*L. clipeus, clypeus,* that which protects or covers, a shield.)—A broad semi-circular shaped plate forming the point of the head, and situated just below the antennæ. To its lower edge is attached by a moveable joint the labrum or upper lip.

Coalesce. *v. intr.* (*L. coalesco,* fr. *co,* together, and *alesco,* I grow up.)—To grow together, to unite and adhere in one body or mass.

Coalescence. *n.*—Concretion; fusion; the union of bodies into one: growing together of several parts, as the union and growing together of the ganglia during the development of the larva and chrysalis.

Worcester Bee-Keepers' Association.—It may be of interest to know that the first natural swarm I have met with in this county during the present season, came off on May 7th in the apiary of Miss Humphrey, at Pershore. Drones were flying freely from this hive on April 17th.—E. Davenport, *Expert.*

Swarm.—On Sunday afternoon, the 19th inst., I had a strong swarm of bees from a straw skep. In the evening of same day had it safely introduced within a bar frame-hive. First swarm I have heard of hereabouts.—J. Ingram.

Facts for Beginners.—1. The life of a worker bee during the working season is only from six to eight weeks duration, and a large majority of them never live to see seven weeks. 2. A worker is from five to six days old before it comes out of the hive for the first time to take an airing, and it is from fourteen to sixteen days old before it begins to gather either pollen or honey. 3. All swarms engaged in building comb, when they have not a fertile queen, build only drone comb, and all the comb in the lower or breeding apartment should be worker or brood comb, except a very small quantity of drone comb, four inches square being quite sufficient. 4. The more prolific the queen is the more the young bees you have, and the more surplus honey will be gathered, other things being equal. 5. You ought never to double swarms or stocks of bees in the fall, because you ought to make them strong during the summer by taking brood from the strong stocks and giving it to the weaker. 6. A drone-laying queen should be taken away, and one producing workers be put in her place, or the colony will soon come to naught. 7. As a rule, as soon as a queen shows signs of old age or feebleness, the bees themselves will supersede her. 8. All colonies should be kept strong. 9. Beginners in bee-keeping should be very cautious about increasing the number of their swarms or stocks rapidly.—*Bee-Keepers' Magazine.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 2nd page of Advertisements.)*

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CONTRACTION OF BROOD-NEST, ZINC, ETC.

[2077.] Notwithstanding Mr. Allen Pringle's statements, p. 212, vol. xvii., I am fully prepared to repeat and support by continued practice the 'fact' that the brood-nest can be more profitably contracted without the aid of perforated zinc and division-boards, where a judicious manipulation of the brood-chamber and sections is adopted.

The advantages gained by such measures as advised by me (1973, p. 56) are not merely theoretical, but had been reduced to practice before the same was explained in the *Journal,* and had it not been so I should not have made the plan public. In his haste to condemn a plan he has never tried Mr. Pringle runs to extremes such as he cannot possibly understand me to convey in my former description of the method I had carried out. No one could for a moment consider that either the brood-nest or the spare combs on either side would remain *absolutely* clear of honey and pollen all the season: and no such idea was intended to be conveyed.

Mr. Pringle says that the queen will indulge in excessive brood-rearing if some twelve frames are allowed, and that there will then be a loss of some fifty pounds of honey at the end of the season. Quite true, friend P., we are quite agreed on that point, where no *management* is brought into the question; but why ignore the entire principle of my method? It is right here you are in error. The very act of limiting the actual number of brood frames at just the commencement of the honey flow does, in itself, limit the powers of the queen. She is at once controlled by a superior force of honey gatherers set at liberty by the removal of the surplus brood hitherto requiring their attention. When once the balance of power is placed with the honey-gatherers rather than with the nurses, I have yet to see the queen that will regain the ascendancy.

No one acquainted with the subject could suppose that the brood-nest would not gradually extend to the combs put in on either side, nor that at the end of the season no honey would be there stored. It was the very knowledge that such gradual extension would occur which induced me to state that the brood-nest would not be 'pinched,' and at the end of the season the stock would come out far ahead of one that had its brood-chamber restricted by division-boards.

Mr. Pringle cannot work without excluder zinc, and hardly knows what a cell of pollen looks like in his sections since he used it. Scores of bee-keepers, both here and in America, so manage without its use that they also hardly know what pollen is like in their sections; but if Mr. P. uses the long-hole zinc, as I believe he does, I fail to see what that has to do with it in his case, as pollen can be carried through it by the bees. Mr. P. will find neither pollen nor brood ever in his sections if he will only give his queens room below. I may say also that I use only young queens, and never encourage the production of drone comb in the sections; and if the knowledge of these simple facts have enabled me to exclude brood from my sections for a dozen years or more, without

using perforated zinc, then I am certain no cause will arise to induce me to adopt such an expense, nor recommend others to do so, when practice and common sense show that it is neither more nor less than a useless fad, so far as honey production is concerned.—SAML. SIMMINS.

THE PRODUCTION OF COMB HONEY ON A NON-SWARMING PRINCIPLE.

[2078.] During the last two years I have read with much interest the various methods of producing comb honey on a non-swarming principle, or in reducing swarming to a minimum in working for comb honey. I think it is generally admitted by all prominent apiarists that no system of management has yet been discovered that the apiarist can carry his bees from the repository and place them on their summer stands, and when the honey season arrives, put on the section supers, and have the whole apiary bend right to storing honey, and continue so doing throughout the whole season with no fear nor anxiety of swarms issuing. Now don't understand me to say that my system is infallible, as I have only experimented with it two seasons, but thus far it has given perfect satisfaction. In the season of 1886 I decided to run a portion of my apiary for comb honey, and I set apart fifty strong colonies for that purpose. I prepared forty colonies to run on the invertible plan. I got out 1-in. strips 13½ in. long by ⅞ in. in thickness, and placed one over the ends of top-bars, and drove 1½ in. wire nails down through the ends of the frames, thus securing the frames, and made the hives invertible. As soon as the honey season commenced, I inverted them, and put on the sections, and twice each week I took off the sections and inverted them; every other time I would turn the rear ends of the hives to the front, having 1½ in. blocks under the fronts, and eight hives of the lot I allowed their own sweet will, while the other two I had setting quite close together, I exchanged places every day through the honey season.

Now for the results. The first swarming commenced among the eight that were allowed their own way, but I had my mind settled that the balance of the lot of forty-two could not swarm, but in about twelve days out popped one from out of the invertible hives, followed by five or six more the next day, and the day following, as I was inverting them, three swarms came out at once, so I forthwith turned them all right end up and let them swarm, for, you see, I could not help myself. I hived them on five frames with starters (*à la* Hutchinson), and the new swarms built beautiful all worker combs, and just at that time the white honey season was closed, which left me with sections unfinished, and not a particle of honey in the brood-nest.

Now for the two that were exchanged places every day. They went right along through the season, and filled thirty-six one-pound sections each without showing any signs of swarming. But as this plan was too much right down hard work to suit me, it set me to thinking of some plan to make this changing stands an easy task, which resulted in two stands made as follows:—Take a good sound post, and set it firmly in the ground, and saw it off square four or five inches above the surface, then nail a piece of 1½ in. board, 1 ft. square, on the top of the post, and with a jack plane and spirit level make it perfectly level both ways, then take a twelve-foot plank, 1 ft. wide by 2 in. thick, cross cut it in the centre, and nail it together, forming a cross +, and set it on the foot square board that you nail on the post, and with an ½-in. bit bore a hole down through the centre, and put in an iron bolt, and you have a turn-table stand. There should be then pieces of shingles tacked to the ends of the planks to come down quite close to the ground, there is a 2-in. square piece to put under the back end of each hive to give the desired pitch forward. Now lift off the stand, and tallow the top of the 1-ft. square board, replace it, and it is ready for the bees.

Now below I will give directions for putting the bees on the stands and how to manage them through the season. You will see that each stand accommodates four colonies. Carry them from the repository on a fine bright day and set four colonies on each stand (fronts facing out of course) and when they all get flying briskly give the stand a quarter turn. My hives are exactly alike, as all hives should be, and in about an hour or so give them another quarter turn; in fact, you can turn them as often as you please the first day, and at night you will have four colonies of bees as perfectly equalised as can be and all on the very best of terms. For the balance of the season all that is required is to go to the stands every morning and give them a quarter turn. I always turn them with the sun. My experience has been for the two last seasons that bees run on the above plan go right along through the whole season and give me no trouble whatever, and if my home apiary was in a good locality for comb honey I would have 100 colonies on the above stands instead of eight as I have at present.

The apiarist has advantages in running bees in the above system that never can be accomplished in any other way; for instance, it is admitted that black bees enter the sections more readily than the Italians. All you have to do to bring out the good qualities of each race is to put two colonies of each kind on the same stand, and you get the comb-builders and honey-gatherers in equal force in each hive. I have tested them on that score and they do splendidly. I also tested them in putting a very old queen on one of the stands to see what they would do in superseding her. This was in 1889. On the 26th of May, as I was giving them their turn in the morning, I noticed a young queen on the alighting-board; I at once opened the hive, and found the old queen all right, with two queen-cells just ready to hatch. I cut them out, and found a place for them, and closed the hive, and by the 15th of June I took twelve cells out of that hive. I then removed the old queen, and introduced a young laying queen, and during all this time the stand was turned a quarter turn each day.—C. W. POST, *Murray, April 17th* (*Canadian Honey Producer*).

THE USE OF THE EXTRACTOR—EXTRACTED HONEY.

[2079.] Prof. A. J. Cook has well said, 'Since Mr. Langstroth gave the moveable frame-hive to the world, the apiarist has not been so deeply indebted to any one inventor as to him who gave us the honey-extractor, Herr von Hruschka, of Germany.'

The latter half of the nineteenth century will be styled by future bee-keepers 'the golden era of apiculture.' But a few years ago bee-keeping was in a barbaric state; following the invention of the moveable frame-hive by Rev. L. L. Langstroth in 1852, came many inventions of apiarian implements—some poor, but many of great value—which have made bee-keeping what it is to-day.

One of Michigan's leading bee-men has said that bee-keeping has reached its maximum greatness, or something to that effect. I differ from him—our chosen pursuit is yet in its infancy—it will not have reached its maximum greatness until on every hill and by every stream is heard the low murmuring of the busy bee, and no flower shall bloom in vain, or 'waste its fragrance on the desert air.'

Extracted honey should never be called 'strained honey.' In the good (?) old days of the box-hive, when a colony had died or had been brimstoned, the comb containing honey and pollen was cut out of the hive, mashed up, and then strained. Honey secured in that way is strained honey, not extracted. Of necessity much pollen remained in the honey, often imparting a flavour not to

be desired. Extracted honey is thrown out by a machine called 'the extractor,' and never contains pollen. Pollen in unripe honey, or, more properly, honey that is extracted before the bees have capped it, will ferment, thus giving the honey a disagreeable taste.

The extractor is simply a large can containing a basket made of coarse wire-cloth. The basket can be revolved, and will contain two or more frames of comb. Before the combs are placed in the extractor, the cappings are shaved off with a knife made especially for the purpose; then the basket is revolved. The centrifugal force thus created causes the honey in the outer side of the combs to fly out against the inside of the can, then, by reversing the combs, the honey may be thrown out of the other side.

ADVANTAGES DERIVED FROM THE USE OF THE EXTRACTOR.—The use of the extractor enables us to secure double the amount of honey, and the combs after being extracted from may be placed back in the hive to be filled again, thus saving the bees a great deal of work just at the time when every minute counts. Nor is this all. Every bee-keeper knows that large quantities of honey are consumed by the bees when secreting wax for comb-building; now if empty combs are placed in the hive when needed, the honey that would have been used for making wax is stored along with the surplus honey, thus increasing the product of the colony for the season.

Honey must be coming in in large quantities to insure comb-building, hence in a poor season the bees are very slow to occupy the sections. In such a season a fair crop of extracted honey may be secured when the comb honey crop would be a failure.

When we do not desire any more bees, increase may be prevented much more readily by the use of the extractor than by any other method.

As extracted honey can be produced in larger quantities than comb honey, and can be produced cheaper, hence it finds a more ready sale among the labouring classes generally than comb honey. Extracted honey is rapidly gaining in favour, more than one-half of the honey produced in the United States being extracted.

At the end of the season all unfinished sections may be extracted, and thus what honey is in them is secured in saleable shape. The sections, after having been cleaned up by the bees, should be stored away where they will be safe from dust. The next season they will be valuable to entice the bees into the crates of sections.

By using comb-baskets, broken pieces of comb and pieces of drone-comb that have been cut out of the hive may be extracted, and the comb used for starters.

By proper arrangements, extracted honey may be secured in the spring and late in the fall, and comb honey in the summer; thus we would secure the best honey in the sections, and the poorer as extracted. By this system more honey is secured, for as I have before said, extracted honey may be secured when the bees will not work in the sections.

The mistake made by amateur bee-keepers is in extracting so closely that the bees starve. When the honey has been taken too closely the bees should be fed.

Often in the spring the bees fill the brood-combs so full of honey that the queen has not room to lay, thus the value of the colony for the season is impaired; now if the bee-keeper has his eye on affairs, he may throw the honey out of all the combs but the two outer ones, and thus give the queen a chance to lay; but a watchful eye must be kept, for the bees are apt to do the same thing over again. This extracting usually stimulates the bees.

In the fall, all objectionable honey may be taken from the brood-nest, thus giving more surety of safe wintering.

After being thrown out, the honey should be passed through a cloth to free it from little particles of wax—I purposely refrain from the use of the word 'strainer.' In cold weather it is well to heat the honey, as it flows more readily when warm. In warm weather, if the honey is allowed to stand over night, the wax will rise to the top, when the clear honey may be drawn from the bottom.

Honey should not be extracted until capped; if extracted before, it is thin and watery, and is said to be 'green' or 'unripe.' Green honey is not very palatable, and most of what is thought to be adulterated honey is this very same green honey. With sugar at eight to nine cents per pound, and honey at ten cents, and dealer's commission twenty per cent, what profit could there be in adulterating with sugar?

'But,' says one, 'how about feeding cheap sugar to bees, and letting them store it in the surplus apartments?' That amount will be used, no matter what the source of the food. Now where is the profit?

The best proof of the purity of honey is its candying. When the temperature goes below 80° Fahr., honey will candy. Remember that sugar syrup will not do that, no matter whether the bees or the dealers store it.

To bring candied honey back to a liquid state, slowly heat it; then, if sealed when hot, it will not candy again. When heating, it must not reach the boiling point—a much lower temperature is sufficient.

Extracted honey sells better if put up in small packages. I prefer the pint and quart fruit-cans, as these are of use to the purchaser after being emptied.

People often ask me where honey should be kept, and invariably they think that a cool, damp place is the best. Honey should always be kept in a warm, dry place. It does not matter what kind of honey, for no honey should be kept in a cool, damp room.—*Essay read at the Michigan Convention by* WM. E. GOULD. (*American Bee Journal.*)

TOADS.

[2080.] My apiary is now so small that my notes on bee-keeping are of little value. An idea, however, has struck me which may be worth mentioning. For many years I have used alighting-boards reaching to the ground in front of my hives, and during the last two summers I have been much troubled by toads walking up to the hive entrance. I propose placing French wire nails, or something similar, along the edge of the alighting-board, which touches the ground; these would act as a hindrance to a toad, and at the same time, if not put too closely together, dead bees and other refuse would fall between them, and incoming bees which had dropped to the ground would find no difficulty in getting up on the board. My few hives are all alive and in splendid order, brood on eight frames, and drones hatched.

In looking through some old letters, &c., the other day, I came across what I think must have been one of the earliest lists of bee-appliances issued—a very well-known firm, at the present day with a catalogue of about 70 pages—the one before me is of three sheets only, and at that time I believe there was no competing firm. How things have changed!—EAST GRINSTEAD, *May* 7, 1889.

ERICA CARNEA.

[2081.] 'Early Spring Heath,' *Erica carnea.*—Under the above heading the writer of 'Gardening Notes' in the *Carlisle Express and Examiner* of the 27th ult. writes: '*Erica carnea* is the best of all the hardy spring heaths, and that it blooms profusely during winter and spring is, apart from its great beauty, its highest recommendation. It grows freely in any good garden soil, and broad patches of it on sloping banks nestling among prominent stones or rocky boulders convey the idea of its decorative character most fitly. In such a position on sunny days the least touch sets the pollen flying in clouds from its countless tiny pink bells. Bees seem

very fond of it, as they are to be found in bright weather very busy amongst the flowers, but whether in quest of pollen or honey we cannot say, although, as it is well known that hives that are taken to the moors during the blooming season of our native heather soon increase in weight, it may be assumed that this hardy little foreigner offers material for both food and wax.'—ROMAN WALL, *Haltwhistle.*

THE SOMBRE SIDE OF 'CONTRACTION.'

[2082.] The contraction to be talked about, I understand to be contraction during the honey-harvest for the sake of getting honey put in supers instead of in the brood-combs. It is practised mainly, if not entirely, by raisers of comb honey. I have raised comb honey with ten Langstroth combs in the hive, eight, seven, and six, and in hundreds of cases with four or five, in some cases with three, two, and even with but a single comb. In the latter case no queen was in the hive. Strong reasons will probably be given for and against contraction, and some of these reasons are apt to be carried farther, on each side of the question, than facts will warrant.

So long as there is abundance of room in the brood-combs, I have not found the bees anxious to leave this empty space unoccupied in the brood-chamber to commence work upon empty sections. If, however, room in the brood-chamber be limited as soon as it is all occupied, if the honey-flow continues, the bees *must* store in the sections. One object of contraction, then, is to force the bees into the sections. I do not lay any particular stress on this. Bees will commence work in sections sooner if coaxed in than driven. A section partly or wholly filled, and then the honey extracted in the fall, and the section cleaned out by the bees, makes a *bait* which, put into the central part of a super the following summer, will, at least in my case, start the bees at work in the super just as soon as it is at all desirable to have them there. The seasons of 1887 and 1888 were, in my locality, failures. I put on supers, giving each an empty section as bait, and in nearly every case work was commenced in the supers. A very few colonies succeeded in filling a super; some worked a few sections nearest the bait, but the large majority filled and sealed the bait section and left all the empty sections unworked. The brood-nest was contracted in most of these cases, but is it at all likely that this contraction was just effective enough to start the bees in the bait and no other section?

The objection has been urged that when the brood-nest is contracted, the queen is apt to lay in the supers unless a queen-excluder is used. I have not used a queen-excluder between the brood-chamber and the sections, merely a Heddon slat honey-board, and I have had no trouble with the queen going into the supers. I think not one section in a thousand has had eggs laid in it. Possibly the case might be different if I did not use separators.

I think the two principal reasons in favour of contraction are, first, the white honey is all forced into the sections, giving that much more first-class honey to be sold, and leaving the brood-chamber to be filled up with a poorer class of honey, or with sugar syrup; and, second, the partial suppression of breeding, so that a large quantity of bees will not be raised too late to be of any service in securing the harvest. As to the second reason, I am sceptical. It is true a bee does not go to work in the field till about thirty-seven days after the egg is laid from which it hatches, and from this it might be hastily concluded that where the white-honey harvest lasts only about five weeks, the laying of the queen during that time would only be the means of bringing forth a lot of consumers ready for work just *after* there ceased to be any work for them to do. But it must not be forgotten that, although thirty-seven days may ordinarily elapse from the laying of the egg before the bee is ready for *field* work, it forms an important element in the *hive* work from the very moment of emerging from its cell, and the more bees there are for hive work, the more can be spared to go into the field. Although it is laid down as a general rule that a worker does not go to the field till sixteen days old, it must not be supposed that is a fixed time without regard to circumstances. I have seen workers that I know were only five days old carrying in pollen. A queen had been given sealed brood without any bees, and five days later I saw the young workers carrying in pollen. In this case there were no older bees, and is it not possible that a large force of young bees in the hive might be the means of sending to the field workers of no greater age than five days? In any case, every egg laid as much as twenty-one days before the close of the honey-harvest may be counted as an addition to the working force. It looks to me reasonable that the fewer eggs laid during the last twenty-one days of the honey-harvest the better, providing no after harvest comes. Still, the bees don't always go by my reasoning, and I must confess that I have observed a number of cases in which the queen had unlimited room right through the whole season, and although at the beginning of the season the colonies were not up to average strength, they accomplished more than average results. So I am rather forced to the belief, without seeing any good reason for it, that it may give a large yield to let the queen have full swing throughout the season.

Whether it is best to force all the white honey in the supers, leaving the bees to be fed later, or to fill up on fall flowers, may depend somewhat on circumstances. If dependence is placed on fall flowers, then is it not important to have as strong a force as possible to store this fall honey? If so, contraction may defeat us. If we are to depend on feeding, then we must count on the extra labour, and I seriously doubt whether bees thus fed will in general be in as good condition for winter as those which have been allowed to store their own supplies directly from the flowers. From this it seems possible that, even if a larger crop of white honey may be secured this year by contraction and feeding, it may be so much at the expense of next year's crop that, in the long run contracting may be unprofitable.

All things considered, I am somewhat in doubt as to the whole matter. I do not know that contraction is never profitable, and I do not know that it is never unprofitable, but I know that it involves labour, and, like others, I want a minimum of labour, and as I am doubtful, as to its good results, I am growing more in favour of the simple plan of letting the bees have full room in the brood-nest all the year round.—DR. C. C. MILLER, *Marengo, Ill., April 1st* (*Bee-keepers' Review*).

A FEW HINTS ON WINTERING.

[2083.] The past winter has been a very disastrous one for many bee-keepers in this district, and if one may judge from reports from other parts of the country this is not by any means an exception: as instances I may mention that no less than three apiaries within a mile of mine have been completely annihilated, and in a fourth two out of three succumbed with a large quantity of sealed honey in the combs, therefore a few remarks on the subject of 'wintering' may not be out of place,—the writer having been fortunate enough to bring every stock safely through with scarcely any loss in bees.

Though the above is a well-worn subject, and a great deal has been written and said about it, how is it that we hear of such disasters, and that often among bee-keepers of experience? I venture to suggest that there is no more reliable way of wintering, as regards stores, than (1) placing strips of good carefully-made candy over the

tops of the frames (for making which recipes will be found in recent numbers of this valuable *Journal*), with (2) good sugar syrup, fed rapidly in time for the hives to be closed up not later than the middle of September; the former seem to attract our little pets up into the warmth, in addition to giving them free access over the combs; the latter appears to be appropriated by them far more readily in winter than honey, which often becomes crystallised, and apparently in that state unsuitable for them. The winter before last, the difference between those of my colonies wintered with honey in the frames and those fed up with syrup only was most marked; and this last winter, there being scarcely any honey in most and none in some, seems a further proof that properly prepared sugar syrup is, if not the best food during the winter months, at any rate entitled to rank equally with any other.

As to top covering, five or six thicknesses of carpet was all they had, and until the end of February entrances were left wide open.

That the coming season will prove a good one for bee-keepers generally, and that the time and trouble spent during the past few months may be at last crowned with the reward of a first-rate harvest, is the sincere wish of—
A West Kent Bee-keeper.

HOW TO GET GOOD QUEEN CELLS, &c.

[2084.] Very much has been written about strong colonies for rearing good queen-cells, and I am convinced that too much stress has been laid on this particular feature of getting good cells. Condition has far more to do with good strong cells, which means good strong young queens than does the size of the cell-rearing colony. A moderate-size colony that is living in high life on freshly gathered honey and pollen or is regularly fed on diluted honey till they fairly roar with joyful hum, will never fail to rear good cells that will hatch out strong, lively young queens. These conditions are generally present when bees are casting swarms in a normal way, and herein is the sole reason why queens are generally good when reared under the swarm impulse.

How to Prepare a Colony for Cell Building.—Having the conditions above described present, I remove the queen, and on the following day, about noon, I remove all the unsealed brood. No mistake must be made here. This will set the bees in great excitement over their loss. I let them alone for at least two hours, when I give them some just hatched larvæ. Let the larvæ be no larger in size than a common brass pin and about one-sixteenth of an inch long. I choose the very small larvæ to be on the safe side, but I am not sure that larger larvæ not exceeding thirty-six hours old will make just as good queens. When the larvæ are given to a colony treated as above described they have had time to prepare suitable food for the royal infants, and they accept the larvæ with perfect satisfaction. It does not always work well to give the larvæ immediately after the brood is removed, as the bees in their excitement may sometimes suck up the food surrounding the infant bees or neglect them to their injury. After the colony has been thus provided for, nothing more is done to them except to see that the bees are handling honey all the while till all the cells are sealed. The queen-rearing colony is left undisturbed except to open the hive once on the fifth day to see how many cells have been started. The cells are cut out on the tenth day and distributed, one to each of the prepared nuclei.

Cells from colonies that have cast swarms when the queens are of approved stock are always acceptable.

How to Obtain Swarm-built Cells.—When a colony having a pure-blooded queen, purely mated, casts a swarm, the swarm is hived on the old plan, *i.e.*, the swarm is hived on a new stand so as to leave the parent colony to catch all the straggling bees to keep them strong and redhot to cast after-swarms. On the seventh day after the swarm is issued I cut out the queen-cells and give them to such nuclei as are ready for them; and as the hive is now full of young bees, I remove all unsealed brood and give the colony a frame from my breeding queen of just hatched larvæ and eggs, and the result is another set of queen-cells reared under the swarm impulse.—G. W. Demaree (*Queen Breeder's Journal.*)

DRONE-TRAPS:

Their Advantages, Disadvantages, and Dangers.

[2085.] Drone-traps consist of a sheet of perforated zinc, the holes being of a size that, when fixed at the entrance of a hive, or in its interior divisions, will allow the workers to pass through, but not the drones, so that the latter, when they have once left the hive, cannot regain admittance. This invention finds most favour among bee-keepers using hives with fixed combs, as it enables them to prevent an accumulation of drone population in their apiaries. We, who make use of the moveable bar frame require no apparatus of this kind, as we control our drone brood by the use of artificial comb foundation, and have no difficulty to regulate our stocks in this respect. We have, therefore, no need of this accessory, the use of which interferes with proper ventilation, and retards the development of the brood, to say nothing of the loss of much pollen, by getting scraped off the workers' legs when making their way through the trap holes. This same trap, in the shape of a sheet of perforated zinc, with smaller holes, is also used to check swarming, by preventing a queen from following its subject when in search of a new abode. As we have a safe and easy mode of checking swarming as well, by simply supplying our stocks with a sufficiency of empty combs as will never make them feel the need of emigrating, we can look upon such instruments like the one in question with perfect indifference, particularly as their use often excites the bees against their queens.

I will now explain how I had to convince myself of the dangers which are inseparable to the use of drone-traps for preventing queens from following their swarms. Mr. Quinby, a well-known bee-keeper, once imagined to injure the wings of his queens, and to place a small empty box, without lid, before his hives as a preventive against swarming. This box, or, in other words, drone-trap, was furnished with a sheet of perforated zinc all round, and was so fixed to the entrance that would allow of the bees going through freely, but would prevent the queen from leaving the hive. She tried to come out, but her wings being injured she tried to crawl up the sheet of zinc, but each time she made the attempt she fell into the box. Acting upon his example, I constructed fourteen of such boxes or traps, and after injuring the wings of as many queens, I fixed them at the entrance of their hives. A few days after, a swarm issued from one of these hives, and the queen was soon noticed inside the trap trying to follow her subjects. Soon after, a worker was seen to molest and worry this queen, trying, as it were, to compel her to force herself through the holes of the zinc, and follow the swarm. The swarm eventually returned to the hive.

Two or three days later another attempt to swarm was made in vain, as in the first instance, and I again noticed that the queen was being worried by a larger number of workers than before. The same day, two other hives which had been furnished with drone-traps attempted to swarm, and their queens met with a like treatment. All these three hives tried to swarm again the day after, but in each instance the number of angry workers against their queen was increased.

The same evening I found the queen of the first stock dead in the drone-trap: she was killed by her enraged subjects. The experiment was completed; I had lost a

valuable queen, for which I was very sorry, but I learned one more instinct of bees. It was evident that the bees became most enraged at seeing that their queens could not follow them, and their rage increased every time a new attempt to swarm was made.

In view of such facts, I cannot but arrive at the conclusion that it is wrong to advise the use of traps or perforated zinc in order to prevent swarming, as the results are sure to be disastrous.—CH. DADANT (*Bulletin d'Apiculture*).

IS AUTUMN FEEDING NECESSARY?

[2086.] Being absent from home last autumn I was unable to feed my eight stocks, which were lamentably destitute of stores, at the proper time. I therefore had some round cakes of candy made according to the recipe in Mr. Cowan's book, about six inches diameter by three-quarter inches thick. These I put on the frames under the quilts, and on them the bees did so well, at the cost of one and a half cakes each, that I did not lose a stock, though two of them were weak when I began syrup-feeding on March 15th. I gave a little syrup regularly up to May 1st, and what with that and the weather I have had three swarms: the first, on the 14th, was hived in a Blow Combination on eight frames; is now on eleven and will soon require more. The second, on the 18th:

'Eheu fugaces, Postume, Postume,
The bees flew away and are lost to me, lost to me!'

The third we have just secured from a bough of a tree fifteen feet from the ground and hope for better luck.—U. PARRY OKENDEN, *Turnworth, Blandford, May 20th.*

FEEDING BEES AND SUPPLYING THEM WITH WATER.

[2087.] One of the subjects of discussion in the *Bienenzeitung* and at bee-keepers' meetings is the question as to how and when stimulative food should be given and what it should consist of. No bee-keeper will deny that it is *possible* to obtain great advantages from stimulative feeding, but there are many who maintain that it *may* do more harm than good, because it causes the bees to fly out at a time when it is not desirable that they should do so.

It would be well if the real cause of these unseasonable excursions could be determined. Although I have an opinion of my own on the subject, I do not wish to state it at present; I may say, however, that I believe it possible to prevent these excursions in cold weather, at least to a great extent, by giving the bees food in a solid state, and at the same time a supply of water.

In a late number of the *Bienenzeitung* Dr. Dzierzon has drawn attention to the value of such food, the preparation of which he calls a yet unsolved problem, and yet nothing more has been heard of this since. Mr. Hilbert has suggested the use of food in a semi-solid state, but as nobody has ventured to express an opinion on his proposition, I wish to relate what kind of food is used for stimulative purposes in the United States.

For feeding in winter, if necessary, Dr. Dzierzon has repeatedly recommended malt-sugar, which is placed on the comb-bars or the upper parts of frames. Mr. Hanneman, some years ago, indicated a kind of food for stimulative purposes, which can be prepared still more easily, and which is also much in use in the United States. It is prepared by pouring on crushed sugar a very small quantity of water, just enough to form a thick syrup, which is boiled for some time while the solution is being continually stirred (to prevent burning). As soon as it is of the proper consistency it is allowed to cool until it becomes thick; it is then stirred once more and poured upon pieces of paper or into a mould, and is then allowed to dry. When the syrup has been boiled neither too much nor too little, the candy (as it is called here) becomes firm and hard on the outside in a few days, while the interior remains juicy and soft. In that state it may be kept for a considerable time for future use.

It is not at all difficult to prepare a candy in the composition of which nitrogen enters; to do so it is necessary to add to the sugar one-fourth to one-fifth of its weight of flour and to proceed as has been described. The flour should first be mixed with water and stirred till all the lumps have disappeared, when the sugar is added and the mixture slowly boiled, being at the same time continually stirred. Before the substance is poured out it is allowed to cool a little and then thoroughly stirred once more, after which it is ready to be made into candy of the shape required. If part of the sugar is replaced by honey the candy is rendered still more juicy and remains so. The recipe may be altered in many other ways, thus, instead of flour we may use pollen (if procurable in sufficient quantity), or ground cocoa in small quantities, should the latter promise to be more advantageous; we may even add some salt, wine, &c.

The question as to what kind of food should be given has of course to be decided by various considerations; the price also has to be taken into calculation. Grape-sugar would indeed be an economical food for bees, and might at least be used at certain times of the year, if it did not do harm to bees so frequently, on account of the sulphuric acid it contains. It seems that grape-sugar, of a better quality, manufactured from maize, is obtainable in the United States; at least I have seen very favourable reports from people who had used this article. The presence of sulphuric acid, however, is easily detected. A small quantity of grape-sugar is put into a flask with rain-water, and when dissolved a few drops of a solution of carbonate of baryta are added. If sulphuric acid be present, in however small a quantity, a white precipitate will be formed and the solution becomes opaque; if no precipitate is deposited, then the sugar is free from sulphuric acid.

I am told that grape-sugar, given as food for the winter, possesses the disadvantage of becoming candied in cold weather; to prevent this it is recommended to mix it with one-fourth of its weight of cane-sugar. In the preparation of candy 3 lbs. of grape-sugar should be melted on a slow fire, without the addition of water, and then half a pound of flour should be stirred into it; when nearly cold 1 lb. of crushed loaf-sugar or honey is added, after which the substance is turned out. In the course of a day or two the candy will be hard enough for use.

As to how such candy may be given to bees has already been stated by Dr. Dzierzon; the tablets are broken into pieces of convenient size and placed upon the frames. But as this is not practicable in all hives it is possible to adopt a somewhat different arrangement. A number of thin tinned wires are stretched across the middle of the frame (being the position of the partition wall), a sheet of paper is then laid upon a piece of board, the frame placed upon it and the candy poured over it until the frame is filled; a few days after the frame may be removed and inserted in the hive.

I may remark here, that in the United States wires are also used in frames to prevent breakage of the combs when the heat is very great. The wires having been fixed in the frame, an artificial comb which should just fit into the frame is placed upon them; the comb is then for a few moments exposed to the heat of the sun and pressed against the wires, after which the frame may be inserted. Frames of this description need not be made so strong as others, and the combs are not liable to break when the honey-slinger is used to extract the honey.

A good deal more might be said on feeding, especially in giving food in a liquid state. Numerous contrivances

have been invented for this purpose, a great many of which I have tried during my practice as a bee-keeper, but I have not found one of them faultless. In all feeding apparatus with the floating cover or similar arrangement, a number of bees are always drowned. A tin can (I prefer tin vessels to wooden ones, because they can be cleaned more easily) with a perforated cover, such as are used for sugar boxes, makes a very good feeding vessel. This tin is filled with syrup, and after its cover has been put on, is placed on the upper parts of the frames in an inverted position. It may also be used for feeding bees at night before the entrance of the hive, when the tin is placed on two blocks of wood in order that the bees may be able to get to the small holes from below, the apparatus may further be made use of to supply a colony with water, &c. It does not allow a drop of water more to run out than the bees are able to remove. Feeding vessels may, of course, also be made of the shape of frames, and like them be inserted into the hive.

When, however, a colony has not sufficient stores for the winter, and the deficiency to be made up in autumn, in that case food should be supplied in as large quantities at a time as possible. As the weather at that time of the year should still be pretty warm to enable the bees to use the sweet liquids deposited by them in the cells, it is advisable to administer the food in that part of the hive where the honey is intended to be stored. This may be done in a very simple manner as follows:

A pot with a smooth rim is filled with sugar, a sufficient quantity of water being added to dissolve it; a tinned plate is now placed upon the pot invertedly, and the whole quickly turned over so as to make the pot stand upside down in the plate. Three pieces of wood, each exactly 4 mm. (nearly $\frac{1}{6}$ inch) thick, are pushed under the rim of the pot, and the apparatus is then put into the division of the hive which serves as a store-room for the honey. The vessels I use for supplying bees with water are on the same principle, a dish or tin-plate is half filled with small stones (or coarse-grained sand), and a tall, and narrow vessel full of water placed upon it invertedly. The water runs out so slowly that the bees are able to settle safely on the stones and sip up the water from between them. As soon as the vessel is emptied it is replaced by a full one. My thirty-six colonies fetch nearly 2 litres of water from these vessels every day, which shows how necessary it is to supply bees with water if they are unable to procure it from a safe place.

This reminds me again of the question, why bees visit manure-puddles. That they visit them in order to procure salts, is not yet generally acknowledged. My bees, too, in spite of my supplying them with water, visit these puddles, especially in spring when there is much brood in the hives. This certainly does not prove that they fetch anything else but water, but I supply my cattle from time to time with dry salt in old wooden cases, and on these occasions the bees regularly make their appearance and carry off their share of it; here they surely do not come to look for water. When the salt is supplied, for several days following the number of bees that make their appearance becomes so large as almost to molest the cattle, while the manure-puddles are gradually forsaken by the bees. I think this proves conclusively that bees require alkaline salts, which fact should be borne in mind when stimulative food is given.—L. V. Stachelhausen. (*Translated from the Bienenzeitung.*)

Echoes from the Hives.

Amersham, Bucks, May 15th.—The weather seems to have taken a decided change for the better. I took the opportunity of examining my stocks last evening, and found them (two out of three) full on ten bars; the third, an artificial swarm, made late last year, in fact, I was doubtful about the queen getting fertilised, but she did, for I found plenty of young bees and sealed brood. Drones are plying freely to-day, shall put some sections (Lee's) on this week if the elements continue favourable. There has been great mortality among bees in this neighbourhood. One gentleman informs me he had lost eleven out of twelve. I may add I only succeeded in bringing my three stocks through the winter by heavy feeding in the autumn, but it is hard to make old bee-keepers believe in this. I have been stimulating now for five weeks or more. Have not seen a single queen-wasp this spring.—E. Thomas King.

Benhams, Horley, Surrey, May 18th.—In this district large quantities of bees have died during the winter through want of proper feeding. One old skeppist, who has kept one strain of bees for over sixty years, has lost all. In a few cases where I had been able to persuade people to feed in the autumn and spring, I find the bees in good condition. I put up twelve stocks for winter, well provided for. On March 5th, 1889, I put on candy, and found all alive, but some short of stores. On April 16th, when I started to give syrup, I found one lot dead. At the beginning of May I took advantage of a few fine days to give all hives a wash out. During the last week (it has been fine and fruit and chestnut trees, which are late, have come into blossom) I have found honey come in fast, and have put supers on three hives, and to-day find the bees well up in them. This is my third year of bee-keeping. My hives are eight Overton's International on legs, double walls, three Cowan on blocks, and two home-made on legs. I used impervious quilts for the winter, and found all hives dry. I find the bees alight as well on the boards of the hives with legs as they do on the Cowan, having watched this closely since seeing the controversy in the *B. B. J.* on this subject.—R. C. Blundell.

North Devon, May 20th.—We are having glorious bee weather in this district, and with plenty of fruit trees in bloom bees are doing well. My first natural swarm, which was a very large one, came off yesterday (Sunday) from a supered bar frame-hive, and was successfully hived. So far as I can ascertain, about twenty per cent of stocks in skeps survived the past winter in this neighbourhood. I think I ought not to close this 'Echo' without saying how pleased I am with a parcel of super foundation I have received from Mr. J. H. Howard. I have used the best American flat-based foundation, but certainly prefer this, as it seems to possess all the advantages of the American article, with the additional ones of having a natural base, and being of home manufacture.—Rookwood.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

R. de B. Sanderson.—*Transferring.*—Allow the two colonies in skeps to swarm and place each swarm in a separate frame-hive, three weeks after transfer the skeps to frame-hives.

Barley Sugar.—*Feeding on Barley Sugar.*—This has frequently been done, but proper bee-candy is by far the best. Between end of fruit bloom—now on—and commencement of clover bloom feed gently on syrup.

W. H. H.—*Colony Dwindling.*—The queen, if there is one, is at fault,—no doubt worn out. You can do no good with the colony this year; it had better be united to one of the others.

J. H. N.—*Pupæ turned out of Hives.*—The fact of only two being turned out is of no consequence. You may have injured them on examination of colony. Where a large number is thrown out, the bees are in want of stores.

William.—Please refer to reply to 'J. H. N.'

Arthur Wallis.—*Dysentery.*—This rarely occurs in fine weather. Perhaps the bees had been confined to hive, through bad weather, for a few days, the signs you see would only be the natural effects of such confinement. Dysentery is a different thing, both inside and outside of hive is soiled and smells badly. You need have no fear for the prosperity of the colony now the weather is so fine.

W. G. S.—*Dark-coloured matter on Alighting Board.*—This is almost entirely composed of pollen grains. It is the fæces of the bees, who have been, through lack of stores, consuming a larger quantity of pollen than is good for them. These symptoms will disappear now fine weather has made its appearance.

Woodburn.—*Comb.*—The piece of comb sent shows no unusual appearance, and the stores therein are in excellent condition. Evidently the cause of the dwindling must be sought elsewhere.

F. Goodrich.—1. *Honey Plant.*—The plant enclosed is good for bees, and should help you to a surplus if the weather obliges. 2. *Hive Runners.*—We see no objection to your proposal. 3. *Combs.*—Try soaking them in water for some hours before giving them to the bees, and you should then have no difficulty in getting them cleared out.

Jersey Bee-keeper.—*Dead Bees.*—One of the bees sent is a queen; we are unable to specify the cause of death. They are too dry for a microscopical inspection.

Thos. Adams.—*Dead Bee.*—The insect sent appears to be a queen of very stunted growth, and we should say unfertilised.

A. Dix.—*Bees Dying.*—The rate of mortality you mention is not at all heavy. But if you send a few up we will try and get them examined, as it is not possible to pass an opinion at this distance.

R. P.—*Faulty Queen.*—Under the circumstances you have done well. Re-queen as soon as possible, and you might in the meantime give a frame of *sealed* brood, but no bees from any other stock that can afford it. This will invigorate them.

P. Tonkin.—*Bees failing.*—The bees sent are very undersized, and we should strongly recommend you to re-queen them; or, if they are very weak, remove the queen and unite them to another stock; you could subsequently divide. Are the combs very old? The bees look as though they may have been hatched in small cells; they are so unequal in size.

G. B.—*Suspicious Comb.*—We should advise you to spray these combs with salicylic acid, if you do not feel disposed to burn them, which would certainly be the better course, as there is a quantity of putrefying grubs in it.

C. Moore.—The bees sent were very similar to the hive bee; but they belong to the *Andrenidæ*.

SHOWS TO COME.

Bees, Hives, Honey, etc.

June 24-29.—Royal Agricultural Show at Windsor. Entries closed May 1st. Secretary B.B.K.A., J. Huckle, Kings Langley, Herts.

Business Directory.

HIVES AND OTHER APPLIANCES.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Appleton, H. M., 256a Hotwell Road, Bristol.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Burtt, E. J., Stroud Road, Gloucester.
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Howard, J. H., Holme, Peterborough.
Hutchings, A. F., St. Mary Cray, Kent.
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Meadows, W. P., Syston, Leicester.
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FOREIGN BEES AND QUEENS.

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Stothard, G., Welwyn, Herts.

HONEY GLASS MERCHANTS.

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Blow, T. B., Welwyn, Herts.
Pearson, F., Stockton Heath, Warrington.

COMB FOUNDATION MILLS.

Godman, A., St. Albans.

NOTICE.

The *British Bee Journal* is published by Kent & Co., 23 Paternoster Row, and may be obtained of all local Booksellers, and of the following Agents:—

ABBOTT, BROS., Southall, London, and Dublin.
ANDREU, F. C., Port Mahon, Minorca.
APPLETON, H. M., 256a Hotwell Road, Bristol.
BALDWIN, S. J., Stanley Road, Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
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Editorial, Notices, &c.

BRITISH BEE-KEEPERS' ASSOCIATION.

Quarterly Meeting of the Committee and Conference with County Representatives, held at 105 Jermyn Street, on Wednesday, May 22nd. Present—The Hon. and Rev. H. Bligh (in the chair), Rev. F. T. Scott, Rev. J. L. Seager, Rev. R. Errington, Capt. Campbell, H. Jonas, J. Garratt, W. O'B. Glennie (treasurer), and the secretary. The following *ex officio* members were also present, viz.—H. G. Morris (Kent), Dr. Rayner (Middlesex), W. Lees McClure (Lancashire and Cheshire), Miss Eyton (Shropshire), and Rev. W. E. Burkitt (Wilts). Letters were read from the Rev. Dr. Bartrum and Capt. Bush regretting their inability to be present.

On the motion of the Chairman, and seconded by the Rev. F. T. Scott, it was resolved—'That the Committee of the British Bee-keepers' Association has received with the deepest sorrow and regret the intelligence of the death of the Rev. George Raynor. They feel that in common with a very large number of bee-keepers they have lost a true and trusty personal friend, and one who was foremost in their counsels, full of wisdom and experience, perhaps the most eminent bee-keeper of this generation. The Committee especially remember the services which he has rendered as counsellor, examiner, and judge, and the kindly influence which he has ever exerted in their midst. They desire to convey to his widow and family the expression of their deep sympathy, and they trust that the recollection of his useful and benevolent life will be an unceasing source of solace and satisfaction to them.'

Correspondence was read in reference to the arrangements for an exhibition of hives, honey, &c., in connexion with the Royal Counties Agricultural Show, to be held at Horsham on July 9th and following days. After some discussion it was resolved that the matter be referred to a sub-committee with power to arrange such an exhibition at a cost to the Association not exceeding ten pounds.

The Secretary was instructed to prepare and issue a circular to bee-keepers and others soliciting their support to the special fund now being raised on behalf of the Windsor Exhibition.

Mr. Garratt gave notice that at a future meeting he would call attention to the desirability of the Association giving some support to an exhibition of hives, honey, &c., at the Bath and West of England Agricultural Show to be held at Maidstone in 1890.

Judges and examiners were appointed for several exhibitions and examinations to be held in Nottinghamshire, Lincolnshire, Oxfordshire, and Kent.

In reference to the proposed increase of Railway Rates it was resolved, on the motion of Mr. Jonas, seconded by Mr. Glennie, to affiliate the Association to the Railway and Canal Traders' Association.

The following motions and recommendations of the County Representatives were considered and approved:—(1) That the Representatives express their deep sense of the loss the bee-keeping community has sustained in the death of the Rev. George Raynor. (2) That the B.B.K.A. should offer a prize of 3*l.* 3*s.* for the best four-page 8vo. pamphlet setting forth the advantages of Bee-keeping Associations, and why they should be supported by the public, such pamphlet when printed to be supplied to the County Associations at a remunerative price. (3) That no certificates be issued to third-class experts until the B.B.K.A. is satisfied in regard to the honesty and integrity of the candidate.

In addition to the above representatives the following were also present at the Conference, viz.—Mr. A. H. Martin (Worcestershire), Mrs. Currie (Lancashire and Cheshire), Mr. Grimshaw (Yorkshire), and Mr. English (Middlesex).

QUARTERLY CONVERSAZIONE.

The Quarterly Conversazione was held as usual at the offices of the R.S.P.C.A., 105 Jermyn Street, St. James's, S.W., on Wednesday, May 22nd. The chair was taken soon after six o'clock by the Rev. F. T. Scott. Among the ladies and gentlemen present were the Honourable and Rev. Henry Bligh, Mr. Hooker, Mr. Grimshaw, Mr. Bunbury, and Mr. Buller.

The Chairman in opening the proceedings said that Mr. Grimshaw had kindly consented to read a paper which he had prepared on the Language of Bees. The subject was an abstruse one, but as Mr. Grimshaw had been initiated into its mysteries, no doubt the audience would be glad to hear his views thereon. Most bee-keepers understood something about the music of bees, but he thought their language was as a sealed book to the most experienced apiculturists.

Mr. Grimshaw, in a few introductory remarks, said that he was afraid the title of his paper was somewhat misleading, perhaps. He trusted they did not expect he had come prepared with the alphabet of the language used by bees, or with any description of the methods by which those insects talk to one another. He had endeavoured to put his opinions in an argumentative and suggestive form, raising points that at present were debatable, and he hoped would furnish suitable matter for discussion. He had always acted upon that view

whenever he had read papers at the Conversazione meetings.

The Language of Bees.

In the first place, the use of the word 'language' is, to my mind, faulty as applied to insects, or, indeed, to any other animal excepting man; but as I fail to find another word expressing exactly what I do mean, I will ask you to apply it only in the sense of a method of expressing ideas. I take the word 'language' to convey the notion that a tongue and vocal organs are first necessary for the utterance of signs and sounds previously arranged by art into an orderly system, the comprehension of the meaning of these sounds being possible only to such individuals as have been taught their meaning in the past. In other words, I cannot think of bees, nor of any animal besides man, as possessing a language in the true and full sense of the word. The arrangement and development of a real language is as much an artificial process as the invention of either an arithmetic or a system of mathematics; indeed, as much so as is the art of writing or telegraphy. It is only by some such use of his intellectual power that man proves his right to be classed as a superior being, endowed with something (reason, mind, soul) which lifts him far above the rest of animated nature.

We have no direct information as to the language used by our reputed first ancestors, but I opine they conversed mostly by dumb show, incoherent exclamations, and facial expressions of varying emotions: that as these signs began to be mutually understood, they formed the nucleus, and became the foundation, of a language. I could no more believe man was created having a ready-made language intuitively than I could believe him provided by nature with a Waterbury watch. Every tongue spoken by every race of living men, the unused languages of extinct peoples, who still live in their written records as much as the minds of the early writers vivify the ancient classics, all show themselves to be as truly structural and orderly works of art (built up piecemeal on their foundations), as is the Acropolis of Athens or the Eiffel Tower. This cannot be the case with the methods of intercommunication used by bees. We must as much deny them the knowledge of a true language as we deny it to the infant, who has no royal road to its speech; it has all to learn by hard experience from its first imitative utterance up to the fine period of the orator; from the alphabet forwards, and backwards to its cuneiform decipherings.

Let us mentally enter the bee-hive in search of the method by which our bees communicate ideas, impressions, desires, one to another. We may not be able to get much information beyond that already at our disposal in past writings, but perhaps we may dispel one or two false articles of faith which simply obtain until they are brought into the daylight of reason. Animals devoid of the gift of acquiring a language are compensated for this loss by an immense endowment of instinct, an intuitive and almost electrical power of comprehension, an unreasoning, urging impulse, by means of which they are enabled to understand one another. In this way the broody hen utters her chucking long ere she hatches her chicks, and when a bird flies across the sky, hereditary alarm and solicitude for its young instinctively suggest to the mother the soaring of a hawk. Then follows the warning maternal shriek, and the instinctive rush of her young ones to the shelter of her wings. Similar instances are plentiful in natural history, but they only convey to us an idea of the existence amongst animals of such a rude method of communicating ideas as is instanced by the effect on human beings of smiles or tears, laughter or crying, by the expression of the face, movements of the limbs, or by such dumb show and voice-tones as might be used by savages of different races in their attempts to intercommunicate. Such a low form of language as this is lofty as compared with that of our bees, for to utter and comprehend it demands the use of reason. Nothing perhaps, besides mechanical instinct, and irrational acquiescence in, and obedience to, the habits of the multitude, prompt or guide the bee in its wonderful operations in the hive. Such promptings may be illustrated by the marshalling of a swarm of tadpoles in a stagnant pool, the orderly movement of a school of fish in the sea, or the regular deploying of an immense flight of birds in the air; mysterious affairs, but not more so than the swarming of bees was considered a short time ago, or the movements of a cluster in wintering 'one cell higher' at a supposed given signal, the said signal simply being the advance of a top row of bees after having emptied the underlying cell, the underlying bees' heads following those above them for warmth's sake.

I am not intending to deny to the bee the possession and use of some power very closely resembling reason, but I am endeavouring to show that amongst many of the wonders written down to its credit, that of the use of a power we call language does not exist.

We commonly suppose that if, in its morning's wanderings, a worker comes across a find in the shape of a lime-tree, a clover field in an adverse wind, or even an ill-guarded hive, she rushes home, communicates her discovery, and is followed away by a numerous company. Not a bit of it; I think she greedily gorges, like a glutton, on semi-intoxicating nectar, until she can only just land home (or into some one else's home), and is met on the threshold by one or two affectionate janitors who welcome everybody possessing anything to their taste, and who proceed to relieve the incomer of its surplus wealth, whilst we poetically imagine a lively conversation is being carried on by means of the antennæ as to the whereabouts of this new El Dorado. No, they themselves probably determine to follow in the wake of the nectar-scented bee when she quietly sneaks out for another load, the surplus of which she has hidden away in a cell. Like Sin, her guilt leaves behind it a betraying trail, and when the outward journey is taken, without the necessity for a single word, divers members of the family circle, aye, and neighbours too, accompany her like wreckers on the coast. Believe me, the wise provision (prevision) for winter which alone asserts the superiority of the honey-bee over most other insects, will, in time, have to be consigned to that limbo of romantic and poetical myths with which an inventive and fanciful ancestry has surrounded our science. Selfish greed leads them to gather much more than they require for the time being; so it is build and store, store and build, as long as the honey glut lasts, under the wise guidance of the same Almighty hand which sends the grub downwards as the frost intensifies, and draws the sap upwards in returning spring. Therein is the wisdom and wondrous mystery, not in the knowledge and will of the creature, but in the omnipresent power of the Creator.

Admitting that bees have the means of uttering, and the power of hearing and interpreting certain sounds made by others of their kind, this is probably as unreasoning a sort of language as that of the dog baying the moon or howling at the sound of music. The instinctive piping of the queen always means the same thing; the agitated, irritated worker puffing out of the spiracles its currents of air impinging on the rapidly moving wing-edges tells us thus of its anger; the steady, business-like regularity, the happy hum of the worker working, tell its mates that if they are to do much work they must not make much noise about it (especially is this the case at early morn and dewy eve, when the wing-edges are moister than in the full heat of noontime, at which time the noise of humming sounds sharper and louder than at others); the music of

swarming, the tones of flying drones so exciting to the bee-keeper who hurries forward preparation for swarms, these are mechanical notes which only accompany various phases. What others there may be is but a matter of conjecture, and they can only be admitted to exist by analogy.

Let us now turn to that enchanter's wand, the antenna, wherein, to my mind, resides more of wonder, more of mystery and beauty, than in any other part of the bee's body. We must admit that highly developed touching, smelling, and hearing organs all find their place on this flail-like rod, but I doubt very much that the bee converses by its means; indeed, I will be venturesome enough to deny it altogether. My reason for this heresy is, that for the bee to use its autennæ as the medium of language, tapping on the head of its companion (over that part known as the œsophageal ganglion), demands the existence of a code of signals understood by both, and codes (unlike poets) are made, not born. A code demands not only a rational intellect to invent and perfect it into a system, but an assistant language for its elucidation and explanation. Semaphores, or the Morse method, necessitate that other wonder of the world—a written language. For a newly hatched bee to receive a series of taps on the head according to an organized system requires first that it should be master of such an arrangement before it can comprehend it, and it would call on us for as great a stretch of the imagination to believe the young bee capable of understanding a language of code signals as to believe an infant capable of telegraphing round the globe in its mother (!) tongue. We have probably slipped gradually into this great gulph of error in noticing the movements of the antennæ; we have perhaps mistaken mere olfactory courtesies, when bee meets bee, for gossipy inquiries, whereas we might be nearer the mark if we put such movements down to a morbid inquisitiveness after what 'isn't his'n.'

I believe the greatest difficulty in the way of the student of bee-physiology at this day is the vast amount of error imbibed in his early lessons, and this has to be unlearned before he can see the beautiful simple truth. Veils of allegorical fiction about kings, queens, and so on, have been woven from time to time, until now, covered with the dust of antiquity, they appear as disgusting festoons of cobweb, hiding much that is beautiful and true, amongst which I fear we must class the common belief as to their talking to each other by the antennæ. As an instance of error to unlearn, let me call to your mind the assertion of Butler's, that just before the issue of a swarm 'the candidate for the new throne is then, with earnest entreaties, lamentations, and groans, supplicating the queen-mother of the hive to grant her permission to lead the intended colony. This is continued for two days, when the old queen reluctantly gives her fiat in a fuller and stronger tone.' What nonsense! Surely there should be nothing left in the hive for us to learn when the ancients found out, or rather imagined, so much about them, and their pretty conceits have, in course of time, come to be accepted as matters of wonderful fact! The famous experiment of Huber really is in support of the theory that bees do not converse by means of the antennæ, the smell hollows on them evidently being of necessity passed over parts of other bees before recognition is completed. If you remember, in his experiment the queen had to personally answer every inquiry, whereas, if they used a language, or code of signals, the information would have been passed on from one to another. If bees had such a correct method of exchanging ideas as we are led to suppose, we should have little trouble in queen introduction, and only have such a number of queen and drone-cells as might be required. The supposed signal to swarm seems to be only an unbearable turmoil, which reaches such a pitch that the bees begin a stampede; the supposed signal to kill drones is perhaps contagious, the the result of jealous greed, stores cease coming in, and a dog-in-the-manger policy gets abroad; the supposed signal to ventilate may be but an individual effort to get rid of individually surrounding foul air, for bees, in my district at least, do *not* invariably fan at the porch and on the floor of the hive, with their heads pointed so accurately that a current of fresh air is increasingly forced in, the vitiated air being expelled over their backs. Again, it is open to serious doubt whether the bees *do* use their autennæ as compasses, callipers, or measuring instruments, in any way. I will admit their power of hearing, smelling, and touching, but not that they have in them a means of conveying ideas as a language. A blind man is noticed to tap and touch with his finger-ends objects he requires to identify, and in extremely delicate cases he has to apply the finer touch of the lips and tongue to the object. How wrong, then, we should be if we were to say he was signalling with his fingers, or tasting with his tongue.

In a paper previously read by me on 'The Vocal Organs of Bees,' I endeavoured to draw greater attention to the vocal apparatus corresponding to the hearing hollows on the antennæ. In my observations to-night I desire to lessen the importance attached to the antennæ as tactile conversing media. I am willing to admit the possession by bees of a beautiful system of intercommunication, by voice and hearing, the sounds of the voice being as much used and comprehended by them as is the case with any animal in creation, excepting man, who by art has arranged his voice tones into a language. At some future period we may be able to record more bee-tones than to-day, but to comprehend them we should require what there is little chance of acquiring, *i.e.*, the keen intuition possessed by many members of the brute creation.

I feel some diffidence, and must apologise to you for placing my opinions in some contradictory shape to those held and enlarged upon by certain authorities on the study of insects. My excuse must be that in bee-keeping some of the greatest lights have propagated the greatest errors; it therefore remains for the careful and candid student to prove all things for himself as far as possible. In such a search even *his* glimmering lamp may shed a ray in a dark place, and in laying his crude opinions before his fraternity thus draw attention to points of interesting future exploration.

[We postpone the discussion on preceding paper to our next issue.—Ed.]

MELROSE APIARIAN EXHIBITION.

In a previous issue we have briefly mentioned that Scotland is to be favoured this year with an exhibition at Melrose; and as it promises to be of more than usual interest, and no doubt will give a great impetus to the bee-keeping industry, we have much pleasure in recurring to it. The district in which the exhibition is to be held is specially adapted for such a purpose. Being within easy reach of Edinburgh, a favourite resort for summer tourists, and as the Highland Society's show is to be held there this year, there will, in all likelihood, be a large number of visitors, who will take advantage of seeing this apiarian exhibit. From the circular which we have received, and from other information gathered, this Exhibition bids fair to surpass all others of a similar kind ever held in Scotland, or perhaps in Great Britain. It is intended to be kept open for several months, and at the close of the honey season to offer prizes for honey, chiefly amongst cottagers. The building, which is constructed of wood and iron, is about 40 ft. by 30 ft., well lighted, and ample space

provided for all the different exhibits. There are to be observatory hives stocked with bees, appliances of all kinds, manufactured goods from honey and wax, bee-plants, honey, &c. The scientific part of bee-keeping is also to be specially represented, and lectures given when convenient. On a separate piece of ground the driving tent is to be erected, where manipulations will be carried on at suitable times. In addition to this there will be opportunities of showing the different methods of fixing foundation in frames and sections, extracting honey, and everything connected with practical bee-keeping.

Mr. Carmichael, the originator of this Exhibition, is a gentleman well qualified to carry through such an undertaking successfully, being a bee-keeper of experience, scientific as well as practical. It is not with any pecuniary motive this Exhibition has been started, but solely as a labour of love, and from the amount of work entailed, and expenses connected with such a venture, Mr. Carmichael is deserving of all patronage and support. Those who can send any bee-keeping speciality should communicate at once with Mr. Carmichal, so that space may be granted. Manufacturers will also find this a rare opportunity of pushing their wares. In the neighbourhood of Melrose there are numerous bee-keepers who will gladly take advantage of visiting this Exhibition to learn some practical lessons in the art of bee-culture.

THE SWARMING SEASON.

Among the 'old hands' the securing and management of swarms is a simple operation, but to the beginner it has its difficulties. How often it happens with the latter that the *hiving* of a swarm from some awkward position ends in disaster. The queen gets killed, or, perhaps, the bees are lost, all from the want of knowing what to do at the right time. Swarms will be more in demand this season than they have been for several years, consequently a few hints at this period may be acceptable.

Hives intended for swarms should be put in readiness before the busy time: placed in position in the apiary, set level, with foundation fixed in the frames, and only the slides of the doorway closed. An empty round-topped skep and a sheet should also be kept in readiness at this season. With few exceptions, natural swarms light within reach of the ground on beans, potatoes, or low-growing bushes. In this case the bees can usually be put into the frame-hive at once, by bending down the stalk or twig, and placing the hive over the swarm, keeping the end of the hive opposite to the sun, lifted up with a stone or piece of wood. The frames in the hive should be, as it were, sitting on end. In a few minutes the bees will settle among the frames, when it can be lifted on to its stand, and allow all the flying bees to gather. If the hive has a fixed floor, the swarm will require to be first put into a skep, and treated as described later. When the swarm settles on the branch of a tree, the skep should be held under the branch and the bees shaken into it, and allowed to remain in the skeps till the evening.

Occasionally bees select a most awkward place when swarming. The highest branch of a tree, the face of a wall, under the projecting wood of a roof, on the trunk of a tree, or in the middle of a thick-set hedge. In these cases it taxes the ingenuity of the bee-keeper how to proceed. In whatever way it is intended to take the swarm, it should be done at once. The bees should either be brushed into the skep by holding it under the cluster, or by holding the skep above the cluster they can be made to run up with smoke. In all dangerous places it is best for the bee-keeper to wear a veil. When a swarm settles in a thick hedge with a stream of water running under, an old door or a sheet should first be placed over the stream, to prevent the bees from getting drowned, after which they can be shaken into the skep.

On one occasion I had a swarm which alighted on the branch of the highest tree in our neighbourhood, impossible to get to, and I knew that with the strong sun they would not stay long there. Accordingly, I determined to shift them with a small shot from a gun. I loaded the rifle with sixteen pellets of small shot, and let drive at them. Part of the shot went straight through the cluster, as several maimed bees fell down. Whether the queen got struck or not I could not ascertain, but in less than ten minutes every bee left the branch and made straight for their old home.

Putting swarms into frame-hives is also to the 'young hand' a difficulty. But in nearly all districts there is to be found one who takes upon himself the responsibility of teacher, a local magnate of the bee-hive, and on such state occasions as putting swarms into new hives his services are sought after. Those who wish to try the operation themselves should proceed as follows. Of the different kinds of hives now in vogue, they may be classed as of two kinds—the storifying or tiering, and the combination principle. If the hive is of the tiering pattern, first lay the quilt in position over the frames, which may be kept down with a board fixed with two nails partly driven. This holds the quilt and steadies the frames as well. This being done, spread a sheet on the ground, on which place the hive, one side being kept up with a stone, or, better still, a piece of wood. Take the skep containing the swarm and throw the bees out on the sheet, well in below the hive to receive them, and treat as before mentioned. The board fixed over the quilt may now be removed and the hive fixed in position. If the hive is of the combination make and fixed floor, a different method must be employed. First take out all the frames except five or six, place the quilt over these, up to the front of the hive, having a board or slate laid on the quilt to keep it from slifting. The dummy being drawn to the back, leaves a space between the back frame and dummy whereon to throw the swarm. If an extra hand is now here with a sheet, all the better. Shake the bees into the space between the frames and dummy, and quickly lay on the sheet to prevent the bees getting up into the roof. In a short time the bees settle among the frames, and the dummy may then be pushed up close. If any bees are behind the dummy, it can be wedged up from the floor to allow them to pass under. A few trials will make the beginner an adept in the art of swarming.—Wm. McNally.

WARWICKSHIRE BEE-KEEPERS' ASSOCIATION.

The Annual General Meeting of this Association was held on the 16th inst. at the Grand Hotel, Birmingham, Mr. A. H. Foster presiding. Amongst those present were Miss Day, Messrs. C. Barwell, J. Simkins, J. R. Young, Elliott, Round, Field, E. M. Pearson, J. N. Bower (Hon. Sec.), J. R. Jagerthorp (Assist. Sec.), C. W. Summerskill (Expert), &c. The Annual Report, read by Mr. J. N.

Bower, stated that the year 1888 was one of the most disastrous to bee-keepers in the annals of the Association. This had affected the finances of the Association. The income from all sources was 69*l.* 18*s.* 0*d.*, and the expenditure, 91*l.* 4*s.* 6*d.*, leaving an adverse balance of 21*l.* 6*s.* 6*d.* The Committee desired to see the object of the Association fully carried out, but it was impossible to do more than had been done without a substantial increase in the income. The Committee felt the desirability of keeping the Association before the public by exhibiting at the Warwickshire Agricultural Show, and offering prizes as heretofore, but this could not be accomplished without more aid. The Chairman moved the adoption of the report. Mr. Charles Barwell seconded the motion, and said it behoved them to do something for the Association if it was intended to prosper. They must either get new subscribers, or show some extra interest in the work. He knew the Association had done good work in the country districts, and the visits of the expert were always looked forward to with great interest. He, therefore, hoped something would be done in the direction necessary to wipe out the adverse balance. The motion was carried. Votes of thanks were passed to the officers and the Committee for their services during the year. The officers were re-elected. A general discussion on bee-keeping followed the meeting.

BEE-KEEPERS' VOCABULARY;

Or, Glossary of Technical and Scientific Words used in Works upon Bee-keeping.

Coccus Chinensis.—A scale insect producing wax on the Chinese ash (*Fraxinus chinensis*). The wax is known as Chinese insect wax, and melts between 178° and 180° F.

Cocoon. *n.* (Fr. *cocon.*)—The silky tissue or envelope which the larva spins as a covering for itself while in the pupa state.

Coition. *n.* (*L. coitio.*)—Meeting or coming together; copulation.

Cold draught smoker.—A bellows smoker in which the air does not pass through the fuel, but escapes by a blast pipe connected with the nozzle.

Cold system.—When frames are placed at right angles to the entrance and front of the hive, they are said to be arranged on the 'cold system.'

Collar. *n.* (*L. collare*, fr. *collum*, the neck.)—The nerve bundles which surround the œsophagus, and connect the supra- and sub-œsophageal ganglia; œsophageal collar.

Collateral hive.—Hive placed at the side in communication with the main hive.

Collateral system. (*L. collateralis*, side by side.)—Method of working hives by placing them at the sides of the stock or main hive.

Colon. *n.* (*Gr. kolon*, member, large intestine.)—That portion of the alimentary canal situated between the small intestine and the anus; the large intestine.

Colonizing. *ppl.*—A method adopted formerly of working hives and preventing swarming by placing an empty hive beneath the main hive, and removing the upper one when filled with honey. Three boxes were usually employed when working bees in colonies, and sometimes even as many as eight were used; method of dividing colonies by inducing them to enter and fill a second hive communicating with the original one.

Colony. *n.* (*L. colonia*, fr. *colo*, I cultivate.)—The bees composing the stock.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts* (*see 2nd page of Advertisements*).

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

JOTTINGS BY 'WOODLEIGH.'

[2088.] *Obituary.*—The lamented death of our esteemed friend, the Rev. G. Raynor, has made a gap in the front rank of bee-keepers. His busy brain and pen have kept bee-keepers well up in bee work, and in the current topics of the bee world in his highly appreciated 'Useful Hints,' I trust that his mantle has fallen on some worthy successor, who will be as well up in Hints as our late lamented friend; and, though we mourn the loss of a 'father in Israel,' let us emulate his ever-ready kindness to impart knowledge for the benefit of the craft.

Inquiry.—Has our friend 'A. E.' deserted our 'craft?' I don't mean bee-keeping, but our *B. B. J.*; we have not seen his refreshing jottings for a long time in its pages, though I have recently noticed in both *Canadian Bee Journal* and *Gleanings* letters with his familiar signature, and I hope soon we shall get a swarm of jottings from his able pen.

Excluder Zinc.—Thanks for advice, friend Pringle; using excluder zinc, I have no necessity for the impediment between my hives and supers. On an average of ten years I have not had one per cent of sections spoilt with brood, and I don't remember one section with a cell of pollen in a thousand (except the few with brood as before mentioned). Possibly your great country is also great in pollen, and your bees great gatherers of the commodity. Our super crates in this country are made to contain twenty-one two-inch sections, and all, or nearly all, rest on strips of wood giving bee space between the frame and sections. Possibly this bee-space may be different from the T rests of our Transatlantic friends. Perhaps Mr. Pringle will explain in some future number.

Open-air feeding.—Reading somewhere an article on open-air feeding by the late Mr. W. Raitt, I determined to give the plan a trial, and have done so this spring. There being only one colony in close proximity to my own apiary I felt that I should not have many strangers to the feast. I placed four or five large dishes, cut some straw to cover, and poured the thin, very thin, syrup into them twice a-day, and it was wonderful how quickly the syrup was carried into the hives. The syrup can be made by pouring boiling water on the sugar. I used crystallised cane sugar and only gave it during the warm part of the day. If it was a very warm day I gave a 'Benjamin's mess,' and none on cold, dull, or wet days, and do not think I lost a hundred chilled bees during the spring. I made some shelters with boards so that the bees were protected from both wind and rain when collecting the syrup, and what little inside feeding I have done has been by syrup in combs back of brood-nest. My bees have consumed about four cwts. of sugar this spring, made into candy and syrup.

Supering.—The past few days of bright summer weather have started the season well, and I have been busy putting on supers which in some instances were taken to at once, and with a continuance of such splendid bee weather we hope to see (aye, help make) a good show of new honey at the forthcoming 'Royal Show.'

Sections.—Those bee-keepers having sections left from last year or the year before, may easily make them tough enough to fold without breaking at the corners, by laying them on damp bricks for a few hours, or by placing them edgewise and with a small jug, or even a teapot, pour hot water at the joints, and let the water run down through the grooves. A score or more placed edgewise together can be done quickly, far more quickly than one broken one can be tacked up together.—WOODLEIGH.

BEE-KEEPING—HINTS TO BEGINNERS.

[Reprinted from the Annual Report of the Ulster Bee-keepers' Association.]

[2089.] One of the results of the operations of the Ulster Bee-keepers' Association is manifested by an increased number of inquiries for information from many who are anxious to commence bee-keeping on modern and humane principles, and perhaps the objects of the Association are better carried out by giving simple practical advice to such rather than by dealing with abstruse scientific questions about the honey bee and its treatment, leaving these important and necessary subjects to be treated of by journals devoted to such teaching—journals which should certainly be read and studied by bee-keepers as they advance in experience and knowledge if they desire to become experts.

Acting on these lines, in present issue are reproduced slightly enlarged extracts from a paper on 'Modern Bee-keeping,' which appeared in this *Journal* in May, 1888, and which it is stated has been of some practical value to intending bee-keepers.

To those who inquire 'How to Begin,' the advice given is—First make yourself acquainted with the A B C of bee-culture. There are many excellent works published from which you can get all the information you require. Among the best is a handbook entitled *Modern Bee-keeping*, price 6*d*., published by the British Bee-keepers' Association; and the *British Bee-keepers' Guide-book*, published by Mr. Cowan at 1*s*. 6*d*. The former for the present will suit your purpose. Read it carefully, and any passage that may appear obscure will, I am quite sure, be fully explained to you on application to the obliging Hon. Secretary of this Association.

The inquirers about 'how to begin' may be divided into two classes—'those who have kept bees on the old sulphur-pit system,' and want to try the 'modern and humane,' and those who have never kept bees before, and are anxious to begin. First let me say to both, that although it is quite possible to keep bees on the humane system with fair results in 'straw skeps' made for the purpose, yet the bar-frame wooden hive is preferable. It is easier worked, and from it the best possible results are to be obtained. They are now very cheap, and can be had almost anywhere, with every necessary appliance, therefore I recommend the 'modern wooden bar-frame hive.'

Now, as regards the first class solely, who want to change their system. An expert could easily transfer your bees and combs at any time into a bar-frame hive, but as you are not an expert, only a beginner, there would be danger in attempting it; besides, just now there are considerable patches of young brood in every healthy stock, which might be chilled in the operation, consequently leading to grave results as to the future health of the colony. My advice is, to wait till your bees swarm naturally. This will occur perhaps early in June. Previous to this, procure your bar-frame hive, have your foundation fixed in frames (you will be instructed how to do so, or it can be done for you where you purchase your hives), place it on the spot where you intend it to remain, adjust the quilts, which ought to consist of one ply of coarse calico or linen, and one or two folds of clean woollen material, such as part of an old blanket or heavy cloth, have a hole cut in top of first ply, say four by three inches, on which to place your feeder, with a flap to fall over the hole when the feeder is off. Now it is ready for its new occupants.

Your swarm will come off most likely between the hours of ten and two o'clock in the day. Watch carefully till it settles. By no means attempt the old-fashioned operation of beating tin cans, &c., which is as absurd as it is foolish. The swarm will settle at first in the immediate locality, where it should at once be secured; if not, it will take a second flight of perhaps one or two miles, and be lost. The mode of capturing it is simple. Hold an inverted straw skep under it with one hand, with the other lay hold of the branch on which the bees rest, and shake them into the skep. Place this at once on a board on the ground, with a stick under one side, so as to allow the stragglers to run in. Throw a sheet over it, not covering the entrance, and let all remain till evening. At any time between four and six o'clock, go to your bar-frame hive, place six frames in order, with dummy-board outside; this at first is quite sufficient for even the largest swarm. See that the quilt is neatly arranged over frames, leaving no openings. Open the door full width, have a board as wide as your hive and about as long, place it in a sloping position from the door to the ground; cover it with a pretty large sheet, which fasten to the extreme sides of the hive, to prevent the bees getting under. Now take the skep containing the swarm and dash the bees on the sloping board, as near the hive door as possible, when, without attempting to fly, they will at once run in. Should they hesitate, their movements can be accelerated by an occasional puff from your smoker, and in a few minutes all will be comfortably secure. Note.—Swarms should be fed for a few days, especially during unfavourable weather. For this purpose dissolve in proportion five pounds of loaf sugar to one quart of water (for feeding in autumn, four pounds sugar to same quantity of water), with a pinch of salt and a table-spoonful of vinegar added. Keep constantly stirred to prevent burning, and boil for about two minutes. Supply this syrup in the feeder on top of frames, carefully covered up till the bees have worked out their cells for storage of honey. A careful examination should be occasionally made of all new stocks, to see if the frames are straight and even, and that there is no breakage or collapse of foundation, which sometimes happens during excessive heat, and also to add new frames when required, till the brood-nest is complete.

The indications of the approach of swarming are very apparent. The hive becomes crowded, owing to the bees remaining at home instead of working in the fields, clusters of them hanging outside, and drones flying about in numbers. When this is observed, the hive should be closely watched during the hours named, for at any moment the swarm may issue. There is no mistaking bees swarming. They rush out of the hive in crowds, almost frantic, wheeling about in circles, generally settling on a low bush or hedge, as stated, in the immediate locality. But if the day is exceptionally fine and warm, and if there are large trees near, probably they may select a branch twelve to twenty feet high. To prevent this, it is well to have a bucket of water and a garden syringe at hand, so that if the bees, instead of clustering low, fly higher and higher in the air, shoot some water, not among the bees, but above them, so that it may fall like rain, when at once they will descend and rest upon a suitable level. On an occasion of this kind, the writer, as an experiment, placed an empty skep on a board under a rose-tree, one side raised up, and by a moderate and judicious use of the syringe, compelled the swarm to alight upon that exact rose-tree, and when the cluster was complete, shook the bees from the tree on to the board; in a few moments every bee was safely housed.

As regards those who have never kept bees before,

and want to begin, there are two courses open to them—either to procure a stock complete, or wait till the swarming season, and get a swarm. If you decide upon the first, no better time than the present for doing so. Ascertain where you can get a strong and healthy colony, if possible with a queen of last year. A practical lesson on the spot from the apiarian who will give you the bees, as to working of the hive, time for putting on supers or section-frames, and other mysteries of bee-craft, will help to elucidate your reading, and give you all the information you want. If you prefer the latter course, procure your hive in time. Bespeak your swarm from a healthy apiary, you will receive it perhaps in June or July, then follow out the instructions given above.

Apart from a complete hive, all the appliances required by a beginner are a veil and smoker. For the former it will do to sew a piece of coarse mosquito net in the shape of a bag without a bottom, having a running string at each end, one to fasten round the hat, the other to be securely tied under the collar. This, although not absolutely necessary, will give confidence to the timid during manipulation. The knowledge of the use of the smoker is derived from a natural law. It is well known that before bees swarm they fill their honey-bags from the parent stock, and when thus gorged—like a quarrelsome man after a good dinner—they are not disposed to be vicious. Knowing this, the bee-master, before handling his bees, gives a few puffs of smoke at the door of the hive, and under the corners of quilt at top, when the bees, perceiving something extraordinary is going to happen, will at once fly to secure what to them is the sweetest thing in the world. In a minute or two they are filled with honey, and can be handled with impunity. But let me caution my readers on this point, do not meddle too much with your bees, the less disturbance they get the better; only examine when necessary, and then do so as quietly as possible. Quick and hurried movements only irritate them, and must be avoided.

Also, a suitable day and a suitable hour must be selected for manipulation; wet, stormy, or very cold days will not do; towards the evening of a fine warm day is considered the best. Do not wear gloves; they are clumsy; carry in your pocket or basket, where you keep your appliances for apiary, a small bottle of dilute ammonia. If attacked extract the sting at once and apply the liquid a few times by means of the cork, when the pain will cease and inflammation be prevented.

The foregoing, as stated, are simply a few practical hints as to the steps to be taken by those anxious to begin bee-keeping on modern principles. Future movements must be guided by the knowledge gained from reading bee journals, from experience, and, if possible, from occasional visits to the apiary of some successful bee-keeper; and future success can only be obtained by those who have a natural aptness for investigation, combined with energy and perseverance. Even to such, owing to our climatic changes and other unforeseen causes, disappointments will arise sufficient to damp the ardour of many who adopt bee-keeping as a sort of a fashionable hobby without ever counting the cost, so that when trials and difficulties meet them they give it up in disgust. But these trials, difficulties, and disappointments only serve to stimulate the ardent bee-keeper to fresh exertion in the cause he loves so well, and from which he derives not only keen pleasure and enjoyment, but is also taught so many useful lessons in industry and practical domestic economy.—ARCHIBALD MORRIS, *Knockbreda Park, April*, 1889.

WASPS AND BEES IN BAR-FRAME HIVES.

[2090.] Another week having elapsed I again measured and examined the wasp's nest I spoke of in the *British Bee Journal* of last week. It is surprising the progress that has been made in the short space of a week. When we consider that as yet there is only one insect to do all, namely, build cells, lay eggs, feed the young, and construct the nest, we may be assured of one thing—that her life is anything but an idle one.

I find the shape is altered somewhat. The beautiful dome-shaped formation I mentioned last, and which seemed to shelter the nest proper, is being built down and added to the nest, becoming a second outward covering. The space enclosed between the two (as near as I could tell) being about ¼ inch. A second dome is in process of formation from the top. The exact size is 1⅝ inch from side to side, and 2 inch from hive top to the lowest point.

I have noticed no worker wasps. I again enclose drawings.

I examined the wasps' nest in frame-hive for the third time, being the third week of its existence, and I find that its shape is almost identical with the description I gave in the *Bee Journal* of May 16th. It has, however, increased in size, the measurements being, diameter of dome, 2 in.; nest proper, 1⅝ in.; length of all, 2¼ in.; length of dome alone, ⅛ of an inch; opening, or entrance to nest, ⅝ in.

While I was taking measurements, I chanced to slightly catch the sides with the instrument, when I at once heard a buzzing sound inside, and out came her ladyship. I was struck with what seemed to be the smallness of room she had allowed herself for exit, making her movements appear quite awkward.

There are no worker wasps flying yet. I enclose drawings again.—C. C. MOORE, *Altrincham, May 20th.*

ON SWARMING.

On summer days in 'leafy June,'
To stand beside the hives at noon
And watch the bees proceed to swarm,
Is pleasant work when days are warm.

With merry hum they issue forth
And dance in front in seeming sport,
While louder, louder, grows the sound
Of drones and workers all around.

Up and down the board they rush,
Now in, now out, in such a fuss,
In seeming madness topple o'er,
Then rush back smartly as before.

At length their doubt is put to flight,
And forth they issue left and right
In countless numbers—seething mass—
It cheers the heart to see them pass.

As rushing, crushing on they sweep,
(A few look back to take a peep)
As humming, buzzing, loud and long,
They haste to join the happy throng.

The watcher, standing in his place,
Soon sights a bee with queenly grace,
Come forth, reluctant for the flight,
While hurried on in seeming fright.

Ere long she leaves, and soars aloft
While circling many times and oft,
And joins in unaccustomed flight
The swarm who hail her with delight.

The swarm now whirling round and round,
Filling the air with joyful sound,
Sways to and fro, flies here and there
In wild confusion everywhere.

But soon, as if by magic spell
Or quick command—we cannot tell—
A few on chosen bush alight
With merry hum and great delight.

With quick perception, keenest sight,
The whole throng up in hasty flight,
And crowding quickly, fall around
On bush, and grass, and on the ground.

Increasing ever and anon,
And each to other clinging on,
The gathered cluster humming cease,
And sing a gentle hush of peace.

The apiarian, hive in hand,
Beside the cluster takes his stand,
And smartly shaking all within
Creates anew the noisy din.

At chosen sight ere long arrived,
And swarm with tact securely hived,
Some bees set forth at once to toil,
While others cleanse their domicile.

The mother bee, with ovaries filled,
Reposes while some comb they build;
Then drops her eggs in new-made cells,
And soon the population swells.

The 'lazy drones' (?) the hours beguile
By flying in and out the while,
Whilst workers with proverbial speed
Lay up in store for time of need. J. Smyth.
Drumlohan.

Echoes from the Hives.

Goole, May 25th.—The beautiful weather we have had of late was brought to an abrupt conclusion on Thursday by a terrible thunderstorm, accompanied by hail of such violence that the like has not been in this district for over twenty years. The hailstones were as large as marbles, and have done a deal of damage to crops and glass in this locality. Our bees are doing very well, that is, some of them. Those having old queens are not as strong as we should like to have seen them, a point in favour in keeping only young queens, but owing to the unfavourable weather last season we were not able to rear sufficient for our requirements. Out of twenty-one stocks only one was lost during the winter. In packing up the stocks for winter, we removed a frame containing very little stores, placing it behind the dummy for the bees to clear, and in a cold spell we had in February this stock perished, as they had taken up their winter quarters on this single comb, which we forgot to remove. The poor bees were packed in a solid mass in about the three-inch space between dummy and hive side, being unable to reach the abundance of natural stores that were in the hive owing to the cold. This has not failed to teach us a lesson.—A. W.

The Maples, Ottershaw, Chertsey, May 26th.—On Wednesday last, May 22nd, I had a good swarm, and on Thursday, May 23rd, had three good swarms, but had the misfortune in having two fly away. I have never before heard of three in one day, especially in May, but no doubt some readers of the *Journal* have.—Fredk. S. Fletcher.

Geddington, Northamptonshire, May 27th.—On Thursday morning, May 23rd, I got a strong swarm of bees (the weight of them was 10½ lbs. good) from a straw skep. I got them safely hived by 10 a.m. At 1 p.m. they started off again to an old skep full of comb (the bees had died in this last winter). I told the man he should not have left it standing out, but we got our bees safe away, and turned them up, and set a new hive full of comb foundation from Abbott's, which I hope they will work out. My brother bought a swarm last June; he is away all day, so I have the management of them. He was very pleased with them, as they are the first swarm hereabouts.—Bee.

Beverley, May 27th.—After a short spell of almost tropical weather, we have lately been having heavy storms of thunder and lightning, with a deluge of rain and hail; this, with a great fall in the temperature and continuous rain for several days, is a most disastrous change for the bees, and many of the hives are throwing out grubs, both from contraction of the brood-nest and shortness of stores. Should the present weather continue a few weeks longer it will mark the extinction of every colony in this part of Yorkshire, unless they are well fed. Feeding now is most important, for the strong hives are full of young bees and brood, and stores are rapidly consumed. A hive which is in full prosperity to-day may, with a few days of continuous wet weather, be utterly ruined. On every side the cry is the same, 'All dead;' 'Had fourteen hives; lost all.' The worst case is, 'Had twenty stocks: gave them 40 lbs. of sugar, and yet have lost every one.' I can only hear of about three or four stocks having survived, except my own, around the town. Old bee-keepers with twenty, thirteen, and eight, &c., &c., have not one left alive.—F. Boyes.

North Leicestershire, May 27th.—From May 1st to 24th (with exception of the proverbial 'three cold days') the weather was almost perfection, and the bees appear in most cases to be making rapid progress. A good many stocks have already received their full number of bars, and are showing white at top of the bars. Commencing with thunder storms, bad weather set in on the afternoon of the 24th; the thermometer dropped from 80° to 49°, and has only passed 50° once since. 2·50 in. of rain has fallen since the 24th, and apple-blossom only just out has been washed away. Losses in this county have been extremely heavy. The expert lifted 101 hives on his first day's journey, and of these no less than seventy-two contained dead bees only.—E. B.

Honeycott, Hawes, North Yorkshire, May 27th.—These last three weeks have been glorious for the bees, pollen has been carried in large quantities, breeding has increased rapidly. I can truly say my stocks are as strong now as they were last year at the end of June. Drones will be flying a month earlier than last season. Bees are scarce hereabouts, mine being the only ones within a radius of about four miles. I could breed any race pure here, but let me have the natives; all mine are such, with but one exception, a stock of Ligurians. They are first-class breeders, it is true, but as to honey-gathering, well, I could almost find as much in a wasps' nest, for so far (I have had them two years) they have got next to none, and have had to be fed each autumn, although strong in numbers. They are very quiet to manipulate, but a friend of mine, who got a queen from Messrs. Neighbour, found them not all so, for his were as savage as a nest of hornets, yet they never stored any honey, whilst the natives in the same apiary were gathering abundant stores. I am satisfied they are not the bees for North Yorks. This fine weather has made wasps begin nesting much earlier than usual. I guess there will be a large quantity this autumn, as what I have seen seem so active. I have only killed three, whilst in 1887 I killed nearly 300.—John Wharton.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Query.—*Carbolised Quilt.*—Will you kindly inform me if, when using the carbolised quilt, it should be *allowed to remain on the hive*, simply turned over to give room during manipulations? Is there any danger, if used too strong or too much, that it may be fatal to the bees? I do not think smoke is really very effectual in general, therefore would like to try this process, if there is no danger attendant. I enclose one of our bees; will you good enough to inform me to what species it belongs? —E. C. M. Carpenter.—Reply.—The way to use the carbolic cloth is to wring it through a solution of the

acid before commencing manipulations, rip the quilt off suddenly with one hand, and at once throw the cloth loosely over the frames with the other. In half a minute all will be quiet, but if the bees boil up again during the examination, a re-application of the quietener for a few seconds will tone them down again. Carbolic acid solution (poisonous) may easily be made too strong, and it will then destroy the skin. Using too much may disgust the bees with the hive, and probably flavour your sections. We, however, strongly recommend its use. See p. 188 of present volume, containing directions for making it as used by the inventor of the carbolised cloth, the late Rev. Geo. Raynor. 2. The bee you enclose is the ordinary English or German black bee.

QUERY.—*Increase of Stocks.*—A man who started bee-keeping by buying two frame hives and black stocks last autumn asked me to look at his bees. I went and found two splendid stocks full of bees and brood. One had drones, the other and better stock had no drones. There was honey to keep them going, but of course he will have to be careful now that there is a slack time. I am doubtful whether to leave them alone, or make an artificial swarm; also, if left to swarm naturally, whether drone comb or new foundation should be given to the droneless stock. The garden being small a natural swarm might escape. Bees have hardly taken syrup this spring. 2. [The latter portion of letter refers to dilatoriness of dealers in fulfilling orders.]—W. M.—REPLY.—If you desire increase of stocks, artificially swarm the stock having plenty of bees, worker brood, and flying drones. You say the stock having no drones is still stronger than this one, therefore you must give them more room, if honey is coming in freely, by putting on a super, otherwise the queen will be cramped for room. We presume you call a good stock one covering nine or ten frames, most of which contain good seams of brood. Do not give drone comb or foundation to the droneless stock, the bees will raise what drones they require without this aid. 2. The way to serve dealers who do not serve you with reasonable promptitude is to send your orders to those who will do so, and there are plenty of these. The fault you complain of is generally caused by bee-keepers themselves, who do not give their orders until they are in urgent need of the goods, and as everybody is ordering the same class of goods at the same time, a rush is on which sadly puzzles the dealer to satisfy.

QUERY.—*Supering a Swarm.*—Will you kindly say which plan would be preferable in order to secure good work in section crate,—to place a swarm upon, say, eight frames with narrow strips of foundation, and crate of partly worked-out sections above; or to give several frames of brood, and the rest with starters and the crate above? Would it make any difference if the bees had not taken possession of the crate previous to swarming? – J. W.—REPLY.—We should prefer hiving the swarm without the brood rather than as you suggest, because, if the brood is not sealed, it will entail considerable labour on the swarm to feed it. If sealed, then, so soon as it hatches out, there will be a large space for the queen to breed in. Either of the above contingencies will militate against your success. What you want is a slowly-formed brood-nest, with ample room in advance of the requirements of the bees *above* their brood. Of course you will put a queen-excluder between frames and sections.

LEMONFIELD.—1. *Open-air feeding.*—In giving food in the open it is necessary to have the syrup very thin—three pounds of sugar to one gallon of water, or even less. The quantity of salicylic acid solution—prepared according to recipe in Cowan's *Guide Book*—may be added to the syrup. 2. *Salt for Bees.*—It will do no harm to give a little salt in the syrup, but bees will live and thrive whether salt is given or not. 3. *Putting Swarms on the Old Stands.*—This is one of the best plans for preventing after-swarms from coming off, the new swarm is considerably strengthened with the flying bees. In addition to this, we usually take one or two frames from the old stock and give to the new swarm, carefully noting that there are no queen-cells on these frames. 4. *Prevention of Swarming.*—By the giving of room below the frames of a tiering hive, and by giving room next to the entrance of hives on the combination principle, swarming is somewhat lessened. This, with the giving of crates of sections above the brood-nest, will in most cases prevent swarming, unless the bees have started queen-cells previous to the giving of the extra room. 5. *Quilts, porous or non-porous.*—There are differences of opinion as to these, personally we prefer a porous quilt in winter, and a non-porous one in summer. 6. *Best and Cheapest Bee-quieter.*—For vicious bees a good volume of smoke will alone keep them at bay, although there are some foreign bees who get worse with smoke. The carbolic acid fumigator and carbolic spray diffuser are both highly recommended. Experience will soon teach you which you prefer to use.

R. REYNETT.—*Foul Brood.*—The piece of comb forwarded is infected with foul brood. The hives and frames with comb if effectually fumigated may be used again, but if there should be any doubt in your mind as to the thoroughness of the process, they had better be destroyed. The instructions in Cowan's *Guide-book* as to fumigation and feeding with salicylic acid solution should be followed closely.

APS.—*Feeding Swarm.*—It will not be wise to place sections on a newly hived swarm and feed at the same time. If a swarm is hived when there is a really good honey flow on, and sections are placed on at once, care must be taken that if the weather turns bad and honey comes in slowly the bees do not starve. Bees should always be fed up in the autumn. Try the camphor, as you suggest. *a*

H. STUART.—1. *Nuclei.*—Our practice is to insert the queen-cell at the same time we make up the nucleus. 2. *Preserving Queen-cells.*—Queen-cells once cut out should be immediately inserted in the nucleus, but we once cut out two fine queen-cells, wrapped them in wadding, taking great care to keep them right way up, placed them in a small tin box, and put it in our arm-pit for warmth, and so managed to convey them safely while walking quite four miles, and we never had better queens than they proved to be.

R. F. K.—Foul brood.

JASMINE.—*Carbolised Cloth.*—If you thoroughly mix the acid and water every time you are about to use it, and always steep the cloth therein before placing it on the hive, the solution you name should answer. Possibly you have not kept the two ingredients in intimate connexion. If left exposed to the air, it will lose strength.

R. GREENWELL.—Piece of comb received, with no accompanying letter. What do you wish us to know? There is no sign of foul brood.

MAYO.—Queen appears a young one, turned out *shortly* after being hatched. You would probably have had a swarm if this had not been done.

Received from Abbott Bros. their Illustrated Catalogue of Bee Appliances, pp. 72.

ERRATUM.—P. 229, col. 2, line 5, *for* indifferention *read* indifferentism.

SHOWS TO COME.

BEES, HIVES, HONEY, ETC.

June 24-29.—Royal Agricultural Show at Windsor. Entries closed May 1st. Secretary B.B.K.A., J. Huckle, Kings Langley, Herts.

NOTICE.

THE *British Bee Journal* is published by KENT & Co., 23 Paternoster Row, and may be obtained of all local Booksellers, and of the following Agents:—

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MARSHALL STEPHENSON,
YORK, *April 25th*, 1889. *Secretary*

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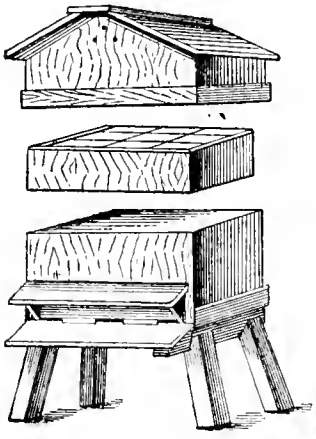

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THE BRITISH BEE JOURNAL

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Editorial, Notices, &c.

BRITISH BEE-KEEPERS' ASSOCIATION.

ROYAL AGRICULTURAL SHOW AT WINDSOR.

The following additional donations have been received:—

Rev. R. Errington	£1	0	0
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FAIRLAWN APIARY, SOUTHALL.

First amongst our 'Eminent Bee-keepers' your readers were recently introduced to Mr. C. N. Abbott, the originator and first editor of the *British Bee Journal*, and one of the founders of the British Bee-keepers' Association. The desire, therefore, to inspect the bee-garden of one who has been justly styled the pioneer of our craft was surely a laudable one; and it was with this object that I set off a few days ago, accompanied by our friend, 'the Sage,' with whom I eagerly anticipate each continuation of our visits to noteworthy bee-gardens.

Fairlawn Apiary is about nine miles from London on the Great Western line. Frequent express trains soon rush us to Southall, past Hanwell with its so suggestive name that I feel sure thousands of passengers have added to their mental Litany, 'From Hanwell and all such places, &c., &c.' Just before reaching our destination we notice, close to the line, the Pitts Apiary, belonging to Messrs. Abbott Bros., nestling snugly in some ancient gravel excavations now devoted to garden produce and watercress cultivation. Some sixty or seventy new hives are here, all of the Gayton type, and are so arranged and painted that the bees must have no eye at all for colour if they get wrong on their return home, laden with the spoil from the gorse, hawthorn, and fruit-trees which abound on every side, and at this lovely season fill the eye with kaleidoscopic changes of colour, in which purple, green, and gold mingle and blend, dart and change into wonderful harmonies as the train speeds along.

Although we were expected (and welcome) guests, yet our host, who never seeks adventitious aid from others, had, with characteristic straightforwardness, determined that we should take him just as we might find him, *i.e.*, not having cleared up, weeded, and trimmed his garden in anticipation of our visit. So we did find him, as we have found him before, with sleeves rolled up, broad-brimmed straw hat tilted back, his portly frame, ruddy face, and sharp, bright eye presenting us with the very *beau ideal* of a happy English gentleman, who fears no man, and who, as far as bee-keeping is concerned, has perhaps discovered more and forgotten less than any man of our time in Britain. This meed of praise is no exaggeration; anyone at all familiar with the history of bee-keeping during the last twenty years knows this to be the case.

Fairlawn House, itself, needs no description here; it is just a commodious, comfortable country residence, the home of a happy household. 'The lawn is fair to see,' for it is the only open space in the grounds, and is surrounded with fruit trees of many kinds, which show by the size their fruit has already attained, that 'there are bees about,' if this, indeed, were not sufficiently self-evident. A single *coup d'œil* shows us bee-hives,—bee-hives everywhere, from the rustic tree trunk and miniature zinc palace to the large wooden house with parti-painted doorways dotted along its front. These last would be, when empty, quite a godsend to a few dextrous throwing youths possessed of a few spare speculative pence. Some hives seem so capacious that they somewhat resemble cattle-troughs with lids on, others are filled with deep brood-frames of the original Langstroth pattern, others again embody the Giotto principle of permitting the side-bars to touch all the way, thus giving a fixed comb distance with no side loss of heat from the brood-nest, and keeping all taut and snug. Mr. Abbott is a consistent and persistent advocate of keeping frames at a given and fixed distance one from another; they can thus be pushed altogether backwards or forwards when wishing to deal with the frames outside the brood-nest. Again, I need scarcely tell your readers that he is the arch-priest of parallelism (not Parnellism), *i.e.*, the arranging of frames parallel with the entrance, so that they may be manipulated from the back of hives, as one stands on a path, without disturbing the incoming and outgoing bees; without disturbing the sections over the front frames, and, when going for extracted honey, without disturbing the brood clusters. I may mention that this plan, which, like all others, finds dissentient bee-keepers (*quot homines, tot sententiæ*—and where will you not find many men, many minds?), had so much to recommend it, that the bee-keepers in my own district adopted it in a body, converting to it such hives as they had on the right-angled system.

I am telling no secret when I inform your readers that for a first quilt over frames Mr. Abbott finds nothing to equal thin kamptulicon or linoleum, cut in strips about five inches wide, the length of the top bar; three of these are used on ordinary hives, and allow us to examine the front, rear, or middle frames without disturbing the others, by removing any one of the strips. The carbolic cloth is also much in favour; for myself, however, I must say that my experience of it tells me

the bees recover so quickly from its fumes that I have 'gone back' to 'bacey.' I think, too, I am safe in telling you a little dodge anent feeding:—A bit is cut out of the bottom edge of dummy-board to correspond with a similar piece cut out of the bottom of feeding-stage; a couple of wire nails are driven through the dummy into the stage. By this plan one can feed at any time, night or day, without disturbing bees, without disturbing the cluster, and causing the inevitable draught through the top of the hive, for where the feeder is there no brood is, with me at least; there is also no stream of syrup, from badly fitting feeders, running down amongst the bees, besides the dummy-board has a foundation given to it which makes it peculiarly rigid. Patentees, beware! Amongst the many interesting things we saw, perhaps the most was a veritable Egyptian hive. This is one of ten brought over some years ago by Captain Watkins, and is a cylinder four feet long, about one foot high, with wall two inches in thickness; it is made of Nile mud mixed with chopped reeds, a plug of the same material stops up both ends, and on the *upper* edge of one of these plugs an entrance is left for the bees; there is thus an opening the entire length of the hive about eight inches in diameter. Both bees and cells were observed to be much smaller than the English bee, and it is to be regretted that specimens of them were not preserved. The Egyptians, in order to take the honey, used to puff smoke in at the entrance, driving the bees backward, they could thus reach with the arm half the length of the hive; proceeding in the same way at the other end the whole hive could be cleared in a short time.

Last year Mr. Abbott received from Minorca the first queen sent to this country, and, with his usual public spirit, set to work to raise queens, which he offered gratis to any of the B. B. K. A. Committee who chose to ask for them. To do this, and to raise a stock of young queens, so as to thoroughly test the quality of the new bee, meant, of necessity, a goodly sacrifice of existing queens or stock; then came the bad weather, accompanied by the well-known bad time for the fertilization of young queens; this spring, therefore, finds him having paid a high price for his courage; nevertheless, I think he may *once more* console himself by parodying the old saying, 'It is sweet and becoming to suffer.' We examined hive after hive of various kinds of bees and found such sheets of brood and stores as demanded early attention, and made me wish for a 'look through' at home, many long miles away. But far the pleasantest part of a particularly delightful afternoon was the quiet chat and smoke in our host's sanctum, where old-time stories, tales of 'hair-breadth 'scapes by flood and field' were eagerly listened to, giving rise to a strong desire that the narrator would at some early date contribute them for the delectation of your readers also.

The late Wm. Raitt once dubbed C. N. Abbott 'the father o' us a''—long may he so remain—the pattern of what a straightforward British bee-keeper should be.—X-Tractor.

USEFUL HINTS.

Weather.—Since the last 'Useful Hints' were issued the weather has been most trying. One or two hot days, succeeded by heavy thunderstorms and deluges of rain, then cold nights, sometimes going below 38°. In fact, we much question whether stocks are so rich in stores as they were a fortnight since. Those who were trying for a few early sections will probably find them emptied, unless they were removed from the hive and a little syrup, just to meet daily needs, given of an evening. June has come in gloriously with two baking hot days, but the morning of the third again gives signs of more rain.

Swarms.—June 2nd, 1889, will, we think, be known as 'swarm Sunday.' A more perfect day for compelling a swarm to issue we scarcely ever remember; even by eight a.m. the heat was quite oppressive. These bursts of hot sunshine will put us to every care to avoid natural swarms issuing in cases where we do not want them. Where sections are already on, much may be done by placing an extra body-box, having frames with ½-*inch starters only*, under the present brood-chamber, and opening the entrance as wide as possible. But it is little use waiting till the colony has commenced raising queen-cells. All devices to prevent swarming should be adopted in advance of the bees' actual requirements, otherwise the bees, having once come under the influence of the swarming impulse, it is frequently impossible to divert their energies into another channel; and even when so diverted, it will be found that there has been a considerable loss of energy. Timely precaution is the great secret of success in preventing swarms. The swarm having issued, must be quickly secured, and, if possible, hived at once on its *permanent position*. Swarms secured in a skep should not be left where found to get to work and so mark the spot, but get them home at once. Any odd bees still on the wing—if the operation has been neatly performed there will be few of these—will return to the old hive. Everything should, as stated in our last, be in readiness; but should no frames be ready, set the skep either in or over the body-box of the hive it is to occupy, and put a cloth round so as to shut out the light, except at the entrance. The bees will not then be annoyed by two shifts, and, consequently, lost by two 'markings.' Swarms being at fever heat must be shaded, otherwise the foundation given will get into hopeless confusion. If possible, the body of the hive should be raised all round on wedges till after sunset. It is these little attentions which constitute the difference between a bee-keeper and a bee-master. Should cold, dull weather again supervene, swarms will require a gentle feed. Remember that natural swarms are said to issue when you are *not* looking; therefore recollect to keep a close watch to prevent loss.

Sections.—Those who have successfully avoided swarming may soon expect to get some finished sections. Every preparation not already made should at once be made in order to have everything quite ready to secure the honey crop—doubling-boxes, spare combs, supers, section-racks, sections, queen-excluders, &c. Being up to time in everything makes bee-keeping one of the most pleasant occupations imaginable; being behind-hand makes it, without doubt, the most worrying and irritating, hence *verbum sap.* Even yet keep sections warmly covered if you want good clean ones. Recollect that the bee in its natural habitat has no means of removing quilts, &c., and yet it does well, and stores most excellent honey. We do not wish to decry any real improvement on the bees' original mode of existing, but fads and faddling we cannot tolerate. Upward ventilation during cold nights does not tend to the production of section honey.

Division Boards should fit accurately, or many bees will get behind them and build comb and store honey therein, to our annoyance.

Extracting.—Mr. Gould's paper, as given on page 233 of this *Journal*, is full of interest, and should be carefully studied by our many friends, to whom the question of £ *s. d.* is an all-important one. We agree with him that our pursuit is still in its infancy. Mr.

Gould says, 'The mistake amateur bee-keepers make is in extracting so closely that the bees starve.' When the honey has been taken too 'closely the bees should be fed.' Please, Mr. Editor, print this large; but, on second thoughts, don't, for it is only the man who searches for help and information that is likely to benefit by it. 'Advise gratis' is of doubtful utility to many.

Toads.—'East Grinstead' will hardly find the wire nails sufficient to prevent the toads getting up to the hive entrances. We have seen toads jump, and should therefore recommend a piece of wire netting instead.

First Crop.—Much fruit has been lost this spring owing to the dearth of bees. Only one or two days were propitious for the setting of the apple crop, and so far as we can see it is a very short set; pears ditto; also plums. But it is noticeable that those trees in the near vicinity of stocks have the best crops. Lime-trees are showing abundance of bloom, and should yield some surplus honey later on.

BEE-KEEPERS' VOCABULARY;

Or, Glossary of Technical and Scientific Words used in Works upon Bee-keeping.

Colt. *n.* (*Sax. colt*, a young horse.)—A third swarm of bees in the same season. (West.)

Comb. *n.* (*Sax. comb.*)—A number of cells built together on either side of a septum, which form a sheet, and are used by the bees for brood and stores.

Comb-bars. *n. pl.*—The bars or strips of wood in bar-hives to which comb is attached, and from which it hangs.

Comb-basket. *n.*—That part of the honey extractor which receives and holds the comb; sometimes improperly used for comb-box, or comb-carrier.

Comb-box. *n.*—A box, with a cover and handles, made to hold one or more frames of comb, that they may be carried about easily; comb-bucket; comb-carrier.

Comb-bucket. *n.*—See *Comb-box.*

Comb-carrier. *n.*—See *Comb-box.*

Comb-cutting.—Cutting out old combs that new may be built; pruning; also called by old writers *gelding, exsection.* See *Castration.*

Comb-foundation.—Sheets of wax stamped with the impressions of the bases of cells which form an artificial beginning for comb-building; formerly used to signify a guide-comb, or starter of natural comb; the impression of the cells stamped by means of a roller on a layer of wax placed on the under side of bars. (Obs.)

Comb-foundation machine.—A machine with two metal rollers having the shape of the bottoms of the cells engraved upon them; machine for rolling out sheets of comb-foundation.

Comb-guides.—Strips of natural comb or comb-foundation, or wood, used to induce bees to build straight combs; comb-starter.

Comb-holder.—An appliance for temporarily supporting a frame of comb after it has been removed from the hive and until it can be returned. Sometimes made to revolve so that both sides of the comb may be examined; comb-rest.

Comb-honey.—Honey in the comb.

Comb-horse.—See *Comb-stand.*

Comb-lifter.—A device for holding and lifting a frame of comb out of a hive.

Comb-pruning.—See *Comb-cutting.*

Comb-rest.—See *Comb-holder.*

OUR LIBRARY TABLE.

Books and pamphlets have been coming in freely lately, and we have quite a heap of them on our table waiting for notice. The last to appear is *Der Schweitzerische Bienenvater*, by Messrs. Jeker, Kramer, and Theiler, the three gentlemen at the head of the German Swiss Bee-keepers' Society. M. Jeker, besides being President, is also editor of *Schweitzerische Bienenzeitung*, a post which he has filled for a good many years, and this alone would be a guarantee of the value of the work before us. It is a hand-book, and treats of modern bee-keeping. We wish more space had been given to moveable top hives, as we are convinced it is only a question of time, and all those who go in for honey will adopt this style of hive if they desire to secure a good profit. The hand-book is conveniently arranged and profusely illustrated with ninety-nine wood-cuts, twenty-three of which are taken from our *Guide Book*. The book is practical and ought to have a good sale, as it is free from the fault of many German books which are so spun out as to make it wearisome to wade through them. M. Kramer is well known as having largely experimented with bees; and M. Theiler has one of the largest apiaries, and is a thoroughly practical man.

Die neue Kunstwabe, by Hermann Koerbs, is a pamphlet describing the origin and manufacture of the one-sided comb foundation there was so much talk about last year. M. Koerbs is still very confident of its practical utility, but somehow has failed to make others see it.

Then we have a pamphlet in Russian by our friend, A. De Zoubareff, called *Vosk ptcheleenoi*, and this is principally a translation of M. Dennler's *Wax and its Economical Uses* (which we hope to have ready in English before long), although there are some additions to it.

Another Russian work, *Zametki o novayshich systemach oulieff*, by P. N. Kouleshoff and N. B. Petroff, treats of the newest systems of hives. Amongst the hives described are the 'Kilburn' hive and the 'Chaff' hive. Methods of working for comb honey in sections are also described. The *British Bee Journal* is spoken of in highly complimentary terms.

Der Honig-Konsument, by Max Pauly, is a pamphlet of considerable pretension, containing forty-six large pages of recipes for utilising honey. There are no less than thirteen chapters, each devoted to some particular branch. Chapter I. treats of Honey Liqueurs. Chapter II., Honey Vinegar; Chapter III., Mead, and so on. Nor are the household uses of wax forgotten, and recipes for all sorts of cakes and biscuits are given. It will be found useful to any one who wishes to utilise his honey to the best advantage.

Then we have G. M. Doolittle's method of *Rearing Queens*, a small pamphlet showing the methods he adopts. His idea is that queens should be raised from the larvæ, and after getting queen-cups started he transfers the young larvæ with a bent tooth-pick to their cells. His idea that all larval food is the same and differs only in quantity, is certainly contrary to that of our chemists, and is not supported by their analyses, which show that food differs in its composition, not only for the larvæ of drones, queen, and workers, but also at different periods of their development. The method advocated is fussy, and could only be carried out by any one having plenty of time at his disposal. There are far simpler plans which entail less risk of damaging the larvæ than the method here described, and which would therefore be more certain to insure success.

The *Imker Album* is a book containing portraits and short sketches of the most noted bee-keepers, together with illustrations of the hives they use and appliances brought out by them. This is the first volume of a series; the engravings are excellent, and the literary part is by

C. J. H. Gravenhorst. It contains portraits of Dzierzon, L. Langstroth, Berlepsch, Schönfeld, Hruschka, Mehring, Ehrenfels, Cowan, Sartori, Huber, and Weygand.

Das Reuben der Bienen in Theorie und Praxis, by Wilhelm Straub, is a book in which the theories respecting robbing are discussed, and remedies given to prevent it. According to Straub robbing is the result of the bee-keeper's carelessness or negligence. It is a practical and readable book, which is more than we can say for several other German books we have before us, and which are certainly not worth the paper they are printed upon.

Belonging to another class of books, although not a new publication, is *A Year among the Bees*, by Dr. Miller, and this, from beginning to end, is full of practical advice written in clear and simple language.

A pamphlet on the home manufacture of comb foundation, entitled *Die Kunstliche Bienenwabe deren Gebrauch und Selbstanfertigung*, by Richard Kaempf, is also before us; and we were astonished when we read it and found what the author claims the credit of invention, improvement, and perfecting for Germany, entirely ignoring what has been done in other countries.

The thirty-seventh thousand of Root's *ABC of Bee-Culture* has just come to hand, and contains a good many additions to the previous volume. The biographies of American bee-keepers and their portraits, beautifully printed, are added at the end of the book. The book has become now a standard of reference, and keeps up its reputation of being up to the times.

The last book we have to notice is *Die Faulbrut der Bienen*, by Emil Hilbert. This is one of the most important, as it treats of foul brood, and is a history of the disease and experiments with it. M. Hilbert has been carrying on a number of experiments, and gives a new method of treatment which he has found efficacious. Into every hive he places a small vial of a mixture of carbolic acid and thymol dissolved in spirit. The vial is stopped with a loose plug of cotton wool, and a thread from this is put into the liquid. Capillarity keeps the plug moist, whilst the heat of the hive causes evaporation of the remedy. The following are the proper proportions and ingredients: 100 grammes pure crystallised carbolic acid dissolved in an equal weight of alcohol. Another solution is made of 33 grammes pure crystallised thymol in 200 grammes of alcohol. The two solutions are then mixed and put into small vials which are to be placed in the hive as far away from the entrance as possible. In most cases, and in the early stages, this treatment alone is sufficient. For bad cases he fumigates with salicylic acid in addition, in the manner described in our *Guide Book*. His experiments have demonstrated that even very strong fumigation with salicylic acid is absolutely harmless to brood and bees, whilst it destroys the germs of foul brood. The remedies are simple and are worth trying.

BRITISH BEE-KEEPERS' ASSOCIATION.

Discussion on Mr. Grimshaw's Paper on 'The Language of Bees.'

The Chairman (the Rev. F. T. Scott) thought all present would thank Mr. Grimshaw for his able paper. He had been much interested in listening to it, although he could not endorse some of the opinions expressed therein. Mr. Grimshaw appeared to believe that if a bee discovered a treasure of honey anywhere and came home with a load of it, the other bees were not told the whereabouts of the store, which they only succeeded in finding by following the discoverer when it made a second journey to the source of its riches. He (the speaker) did not see why the bee should not have communicated the news by means of its antennæ. Mr. Grimshaw spoke of 'voice' and 'hearing.' If bees had a voice, he did not see why they should not have a language; and if the former was admitted, he thought the balance of argument was in favour of the latter. All bee-keepers must acknowledge that bees have a very ready way of communicating facts to each other; and he thought it was certain that when any members of a hive did by chance make a 'find,' the circumstance was known almost instantly to the entire colony. Sir John Lubbock seemed to think that bees did not communicate with one another, but he could not help holding the contrary view, believing that conversation or some equivalent for it, was carried on through sound, or by the antennæ, or other means about which, no doubt, little was definitely known.

Mr. Buller considered that the subject had come upon them too suddenly to allow of the bee-keepers present expressing any opinion thereon founded on thought or experiment. He fully believed that bees had easy means of communication one to another, and he had formed some idea of their methods, but would not that evening express any definite opinion, because he had not yet found an opportunity of thoroughly testing his theory. He would, however, admit that he leant somewhat to Mr. Grimshaw's view. He did not think that bees were so affectionate among themselves as was often believed, and quoted the following experiment in proof thereof. He had placed some food a little distance from the apiary, and powdered about a dozen bees who had discovered the treasure. After keeping close observation for about half an hour he was enabled to say that none but the marked bees visited the food during that period. He thought that bees changed hives much oftener than was generally supposed. It was a common thing to open a hive of black bees and find Ligurians amongst them, and, reasoning by analogy, it was only fair to suppose that there was a frequent interchange of hives in the case of other bees which could not be detected.

Mr. Hooker remarked that Ligurians were noted robbers.

Mr. Grimshaw, in reply, admitted that bees had the power of voice and hearing just as other animals had, but what he wished to say to them, was the power of intercommunication in any form superior to that possessed by the lower animals? There could be no doubt that a shoal of fish in the sea or a flock of pigeons in the air communicated in some way between themselves, but that was a different thing to the possession and use of a language as understood by human beings. It was thought by many bee-keepers that bees could converse with each other in much the same way as rational beings did, and it was that idea that he wished to controvert. Language demanded an alphabet and words, which required the employment of reason, and that of a high order. All languages were the work of centuries; they were built up by experience and founded on reason. If, as some people thought, the bee language was carried on by the sense of touch and through the antennæ, then, in order to come to a common agreement on the subject, a code of signals would be necessary, which in itself required the application of reasoning power. Besides, the knowledge and use of a language was not innate. Children had to be taught their mother tongue, and he submitted that the bees' methods of communication were bred in the species, and required no teaching.

Mr. Hooker said he could not accept Mr. Grimshaw's statement as proved, that bees had no language; and he cited several cases in which it was well established that certain cries uttered by different animals imparted information of a specific character to other members of the same family. He also narrated two circumstances which tended to show that animals possess the power of reasoning in an elementary form.

Mr. Bunbury asked whether it was not possible that birds and other animals might talk in a language that was inaudible to human beings.

Mr. Buller thought Mr. Hooker's examples only showed the display of natural instinct, and pointed to the case of a canary bred in a cage, under conditions which pre-

vented it from ever hearing the song of its species, and yet the captive bird would in time warble the notes characteristic of the canary.

Mr. Bunbury contended that the language of savages was jargon to civilised ears.

Mr. Grimshaw submitted that that argument told in favour of his theory. The children of savages had to be taught their language, it was not bred in them; and a considerable amount of reason had to be exerted before the child could classify and systematise in its own mind the meanings of the sounds uttered by its parents. He could not follow Mr. Hooker in his remarks on instinct and reason, which was a very wide subject, and on which the greatest scientists were not agreed. All he wished to contend was that there was no ground for believing, as the ancients appeared to do (and some of their errors were accepted even at the present time), that bees were better able than other animals to express themselves by means of a common language.

Mr. Buller said he had taken a bar of sealed brood, and carefully brushed off every old bee, afterwards placing it in a nucleus hive. He had kept it warm by artificial means, and the bees eventually went out and gathered food in the ordinary way. They had no parents to instruct them in any language of the hive.

The Chairman moved, and Mr. Buller seconded, a vote of thanks to Mr. Grimshaw for his able paper; the seconder expressing a hope that Mr. Grimshaw would bring the matter on for discussion again at a future meeting.

The Chairman, by desire of Mr. Meggy (who was unavoidably absent), exhibited some specimens of malt honey, some of which had been flavoured with ginger, and some with orange. The samples were manufactured by the Britannia Fruit and Jam Company, Tiptree, Essex.

After the products had been tasted by nearly all, if not all, of the assembled company, Mr. Grimshaw suggested that the meeting should place on record its opinion of the 'honey' in question, which he characterised as 'arrant rubbish.' It was only flavoured syrup.

Mr. Buller thought they ought to object to the name 'honey' being applied to it.

The Chairman said that was the third bee-meeting he had attended during the day. At each of the others the members present had given expression to a feeling of regret at the loss sustained by the bee-keeping world in the death of Mr. Raynor, and he felt sure those who had attended the Conversazione that evening would desire to place on record their sorrow at the unhappy event. The deceased gentleman was a most able man, and one of the most experienced bee-keepers in the country, as well as an invaluable member of the Bee-keepers' Association. He had been many years on its Committee, who had derived great benefit from his very long experience and excellent business habits. He begged to move the following resolution: 'That the members of the B.B.K.A. present at this Conversazione desire to express their deep sense of the loss which this Association in particular, and the bee-keeping community in general, have sustained by the death of the Rev. George Raynor, as well as their sympathy with the widow and family in their bereavement.'

The Hon. and Rev. H. Bligh, in seconding the resolution, said there could be no doubt as to the loss they had sustained, which would be felt in many ways. All who had had the pleasure of knowing Mr. Raynor for several years, as he had, must feel that they had suffered the loss of a personal friend who had left a void in the bee-keeping community which it would be well-nigh impossible to fill. No one had had greater experience than Mr. Raynor, and he thought they might say, without giving offence to anybody, that their lamented friend held the foremost place in the country among amateur bee-keepers. As Mr. Scott had truly said, he had been of the very greatest use to the B.B.K.A. almost from its foundation, and the Council owed an immense deal to his wisdom, and the interest he took in its affairs; indeed, he (the speaker) felt convinced that whatever good work the Association had done throughout the length and breadth of the land was owing, in great measure, to the foresight and excellent advice which Mr. Raynor had rendered the cause.

A vote of thanks was passed to the Chairman, after which the proceedings terminated.

Weather in 1888.—The Report of the Astronomer-Royal presented to the Board of Visitors at Greenwich Observatory on Saturday afternoon contains a short summary of the meteorological observations made in 1888. The average temperature of the whole year was only 47·7 degrees, more than one and a half below the average of the preceding forty-seven years. The hottest day was August 10, when the thermometer rose to 87·7 degrees, and the coldest was February 2nd, when it fell to 18·4 degrees. May, November, and December, were the only months warmer than the average, while July was nearly four and a half degrees cooler than usual. The movement of the air was more than usual, the average daily movement being something like one-twentieth above the mean. Nevertheless, although the year is thus shown to have been a very windy one, the wind pressure per square foot only exceeded twenty pounds on two occasions. On August 28th a pressure of 21 lbs. was recorded, and on March 11th one of 31 lbs. But the most remarkable point about the weather of the year was its *lack of sunshine*. During the whole twelve months there were only 1068 hours of sunshine, or 250 hours below the average of the previous eleven years. We had less than one-quarter of the sunshine that we might have had, only four-fifths of what we ought to have had, and not much more than two-thirds of what we had in the sunny year of the Jubilee. Finally, the rainfall of the year was nearly three inches greater than usual. 1888 was therefore all that was disagreeable—cold, cloudy, wet, and windy.—*Daily News.*

How to Begin Bee-keeping.—Your garden may be very small, and its flowers few and far between, but, as your bee-pasture is an area two or three miles round on all sides, yours for the use of your bees, though entered in other people's title-deeds, your own little plot need not much trouble you. Bees seem to prefer to feed at a little distance from the hive, but have no objection to pasture close at hand. But, if you have any spare space—and there are always nooks and spots available in the smallest garden—sow on these lemon-thyme in abundance, rosemary, lavender, salvia, borage, mignonette, and crocus. Apple-trees, gooseberry and currant trees, and, above all, raspberry plants, are great favourites with bees, and, as their blossom comes early in spring, they are most seasonable and productive. But your chief reliance must be on neighbouring acres of bean-fields and buckwheat, or clover meadows, heather and furze, and hedge blossoms. Limetrees are very valuable; I wish people would allow thorn-hedges to blossom. Let me urge the cottager to use for the edging of his garden lemon-thyme instead of box or daisies. Do not fear keeping a dozen stocks. I think many apiarians talk nonsense when they allege that a district may be overstocked with bee-hives. If the surrounding country be wholly arable, with little common and with too good farming, it may be overstocked. But there are still left commons unenclosed, woods and heath, and clover and tiny weeds, which farmers persecute and bee-masters love, and far off are gardens of all sorts and sizes, in which flowers are cultivated for the owner's pleasure, constituting admirable bee-pasture. I only regret there is such a wide-spread rage for double flowers, for bees never touch them. On that magnificent standard rose, so rich in delicate perfume and so very lovely, a bee never alights, but the briar and hedge-rose are favourites and much frequented.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements.)*

*** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.

[2091.] On behalf of myself and the officers of the L.B.K.A. I beg to thank you very sincerely for your kindly words and good wishes. I heartily re-echo the hope expressed by you 'that a bright future is before us;' but if this is to be the case all interested in bee-culture throughout the county must put their shoulders to the wheel and use every effort to help forward the movement. I would therefore urge *every* Lincolnshire bee-keeper to *at once* join the Association.

We are still without secretaries in some districts, and I shall be glad to receive intimations from such districts of persons willing to assist us.

Our endeavour is to make the Association a valuable help to the working classes by showing them that bee-keeping is both interesting and profitable. To do this it will be necessary to employ lecturers and experts, and to distribute literature bearing upon the subject.

You will see from the above that our ideas are rather ambitious, and unfortunately we are not overburdened with funds, hence we appeal to all interested for assistance either (*a*) by giving lectures, or (*b*) by subscriptions. Thanking you in anticipation for the insertion of this letter.—J. H. HOUGHTON, *Hon. Sec. L.B.K.A.*, 11 *Sydenham Terrace, Louth, May 25.*

RAILWAY RATES.

[2092.] I am a bee-keeper in a small way, and a subscriber to the *B.B.J.*, therefore I feel a trifle privileged to add my mite to the many letters you receive. I really want to call attention to the overcharging railway companies. People are for ever preaching how the agricultural population does not do the best for itself, but take one industry alone, viz., bee-keeping, and see how prohibitive are the rates for small consignments of honey, to say nothing of the careless and destructive way the said consignments are handled: I dare say many another bee-keeper who owns somewhere between four and twelve hives can complain of the same thing. Of course I am not speaking of men who send out their honey by the ton; they may, for aught I know, be met upon more favourable terms, but for such as myself (I have six hives), who has merely a private connexion, and therefore send out honey generally in sections in from six to twenty pounds, these high charges are very detrimental. At the same time, to have the honey damaged in transit, is adding insult to injury. I wish influential bee-keepers would take up the matter strongly, and show the railway companies how they literally stop the smaller producer from taking any advantage of the distant larger towns, where there are buyers always glad of real country produce. I am writing from a very truly rural neighbourhood, four miles from a town, therefore there is the carrier's charge first of all, so what with that trifle, say 3*d.* for a box of 10 lbs., and then the railway, we find neither honey, butter, nor eggs, to say nothing of vegetables, pay to send away. This is wrong, decidedly wrong, and ought, for the good of the country in general, to be altered. Where there are competing lines, some of my bee-keeping friends may not have so much to complain about, but it is to the remoter rural districts, and where a monopoly exists, that I would call special attention.

If any readers of the *B. B. J.* can give me a few hints how to pack section honey *safely*, without having to buy expensive boxes, I shall feel most grateful, and no doubt it will benefit many others.

Small bee-keepers must not go in for 'fads,' or buying more than is absolutely necessary, or where are the profits? I trust I have not occupied too much space. —BEE-KAY.

HIVES IN HAMPSHIRE.

[2093.] While our interesting *Journal* often teems with notes from the cold East and the rich Midlands, and abounds in many 'a far cry' from the North, it would almost seem as though the sunny South were left without an 'echo.' Yet we do keep bees, and though our northern brethren have a rightly-earned reputation for being more 'go-ahead' than we sleepy southerners, the frame-hive is not altogether an unknown invention amongst us, even on the shores of the Solent Sea.

To descend to particulars. In this village, of which I am Vicar, there are no less than seven bee-keepers, who own among them twenty bar-frame hives, besides two or three skeppists. Terrible as the past season has been, all the bar-frame hives have pulled through safely, though they are all in the hands of beginners, as, with one exception, none of us can carry our bee experience further back than three or four years. If it had not been for the *Journal* and its valuable advice, the hum of the bee would have been an almost unknown sound among us this summer; but we did what we were told—fed liberally and early, and with that hope that 'springs eternal' are looking for the harvest. *Ab uno disce omnes.* So at the risk of being personal I will give my own bee history.

In the autumn of 1885 I was started, at rather a long price, with a Cheshire hive full of bees from a distance. No swarm or honey marked the summer of 1886, and then I found what experience would have detected sooner—foul brood. No doubt it was imported, I hope innocently. I added some driven bees and started the Cheshire cure. Matters were much better in the spring of 1887, and might have got all right, but I felt it better for my neighbours, who were of course not feeding medicated syrup, that the smoker should be filled one evening with sulphur and the bees 'quieted,' and all traces of the murder hidden in the bosom of mother earth.

A fresh start with a new swarm in May, 1887, gave me a grand stock and 13 lbs. of super honey. Some driven bees that autumn gave me a second stock for 1888; and bad though that summer was, I took 23 lbs. of super honey, and had a grand swarm, adding to my number in the autumn another hive of driven bees. The four lots wintered well and the best of them, though busy in the supers, threw a swarm last week, which I hived on the old stand on three frames of brood and six of foundation, replacing the supers, and rejoicing in the hot weather last week to see the vigour with which the work was continued.

But enough of my bees. In the valued 'Jottings by Woodleigh' this week we have 'Open-air Feeding' jotted about. Far be it from me to try a joust with such a veteran, yet I must mention what happened to me last autumn. I put some sections in front of my hives to be cleaned out, and the bees at once started robbing a weak lot of a neighbour's a hundred yards away. They seemed perfectly wild at finding sweets were to be had by hunting for them, and they did hunt with a will. Artemus Ward found 'census taking required experience;' so we may say of open-air feeding.

To turn from gay to grave. How intensely shall we miss the kind, wise, scholarly 'Useful Hints' of that Nestor in bee matters, the Rev. George Raynor! Yet with such a legacy of knowledge as he has bequeathed to us of the younger generation, we may well say that, 'he being dead yet speaketh.'—A Hampshire Vicar.

THE FIRST SECTION.

[2094.] I have great pleasure in acquainting you that on the 3rd June I had the privilege of inspecting and weighing what I believe to be the first completed section of 1889 honey crop. It was of capital finish and good weight, usual $4\frac{1}{4} \times 4\frac{1}{4} \times 2$ size.

Mr. Alfred Rowe, of Queen Anne Villas, Church Street, Edmonton, is the fortunate owner of the stock which has thus early produced a finished section. The stock was well fed and cared for in the autumn, and came out very strong in early spring, covered all the frames (twelve) by end of last week in April. Sections were then put on, and at the present time there are sixty-two sections on, in all stages, most of them well advanced towards completion. On Sunday the 2nd, a fine swarm issued from this hive at 9 a.m., and is now merrily at work, while the old stock is still filling its sections.

In conclusion, may I say that Mr. Rowe has, in the past had difficulties enough to discourage any one, therefore he deserves all encouragement now he has succeeded?—W. M. Graham, *Edmonton.*

STRAY SHOTS.

[2095.] *Rev. G. Raynor.*—All British bee-keepers must deplore the loss sustained in the death of the Rev. G. Raynor. Although not aware that he was the author of 'Useful Hints,' I have often gleaned practical information from them. One discovery of his which I find especially useful is the—

Carbolic Solution as a Bee-quieter.—Since I have tried it I have discarded my smoker altogether. I found that smoke had very little effect on some bees unless I over-dosed them with it. My smoker also, like human beings, had fits of ill temper, and either would not keep alight or burnt out rapidly, so that it was not always ready when wanted. In addition to the cheese-cloth and feather, I use a metal spray-diffuser (which cost me 6*d.*) to fit an ordinary medicine bottle. In spite of having my veil on I am able to use it, and a slight puff occasionally keeps my most vicious colony in perfect control. I find that the ordinary carbolic is just as good for the purpose as Calvert's, with rather more for the money. I mix one and a half tablespoonfuls of glycerine and carbolic in one and a half pint wine bottle, and fill up with warm water. I spray old combs and those I put by, and find it checks mildew and moth. Its use, I think, must check disease.

The most natural way of Feeding Bees.—'Woodleigh' speaks of feeding bees with syrup in combs (2088, p. 343). It has often struck me that the plan we usually adopt of feeding by means of a tin or bottle, &c., &c., is not always the success it might be apart from the extra labour given to the bees. And at a time, too, when it is necessary to keep in all the heat possible, feeding above the bars is apt to produce a draught through the brood-nest. No matter what kind of feeder used, syrup rapidly becomes cold, in spite of any amount of packing, so much so that I have often found bees refuse it and have had great difficulty in bringing them round again to the spring, owing to shortness of stores. Combs filled with warm syrup and (I am speaking more particularly of autumn feeding) put in at the sides of the hive—just before night, with the entrances contracted—the bees might be able to rapidly seal over the whole lot without stimulating the queen to ovipositing in the least. Evidently, feeding in the comb must be the most natural way, whether for spring stimulating or autumn stores. Salicylic acid, phenol, or other anti-disease solutions, if administered in this way, are bound to be taken by the bees, even if refused in feeders. How to fill the cells is the question? Some writers suggest pouring the syrup from a fine spout into the cells, but apart from the slowness and messiness of it, half the cells would never get filled, as owing to the oiliness of the combs the syrup runs off. The best thing *I have seen* for the purpose—but much too dear (4*s.* 6*d.*) considering what it is and how it is made—is Howard's comb-filler. It is a water-tight wood box, deep enough to completely enclose a standard frame, and the cover is laid on indiarubber and kept tight by two brass buttons. The syrup is poured in after the frame of worked-out comb is in the box and the cover put on, and the whole jerked up and down a few times. The comb is then taken out, drained and sponged off. In this manner combs are quickly stored with three or four pounds of syrup. Five combs thus treated are almost sufficient in September to last round to the spring. Is there a simpler dodge extant, and is there any reason why feeding in the comb should not be always the best mode to adopt, as by it artificial pollen or syrup can be inserted in the very brood-nest itself?

The best Pasturage for Bees.—I have often been asked what is the best pasturage for bees, and when do they gather most honey? Of course I have been only able to answer in a general way, but I think it is a pity some one does not give a reliable list with English and Latin names of flowers most sought after by bees in Great Britain, with the time of flowering, proper cultivation (if any), &c., &c. I am sure such a list would be of the greatest use to all bee-beepers.—Jersey Bee-keeper.

[A reference to previous volumes of the *Journal* will show that the list desired has frequently been given.—Ed.]

WASPS IN FRAME HIVE.

[2096.] On examining the wasp's nest, I find that it has not altered, either in shape or size, since my last notice. I thought that probably the queen had succumbed to accident, or some one of the many calamities that surround the lives of everything of the kind had occurred, and was remarking this to a friend, when she came flying round the end of the rockery. I suppose she must have been spending her time internally, attending on the young. Up to the present no other wasps are flying.—C. C. Moore, *Altrincham, June 3rd.*

EXPERIENCES.

[2097.] In the year 1886 I thought I would start bee-keeping, as I had a swarm promised me from a friend; so I got a straw hive and had them on the 13th of June. I took them home without mishap, and let them stand there all that summer and the next winter. An old bee-keeper told me to feed them with beer and brown sugar in an alder-wood trough, and of course I did, and made them all intoxicated; and then, on the 31st January, 1887, I joined the Bucks Bee-keepers' Association, and then first heard about scientific bee-keeping and bar-frame hives.

I accordingly had one made, and when I went to put my Standard size bar-frames in, I found it nearly half an inch too small all ways, so I had to have some smaller bars made on purpose for it; but I made it do, and hived my first swarm in it on the 15th of June, and put them on six bars to start with full of comb, and worked four more in afterwards, and on the next day after hiving the secretary came and looked at them, and they had drawn out comb and put in honey and laid eggs in less than twenty-four hours after hiving. I had about 13 lbs. extracted honey, which I thought very good, as it was so very dry that season.

In the autumn of the same year I went with a friend

or two and drove some skeps for an old bee-keeper some two or three miles away. We went in the evening and took up eight lots, and one of them had been standing for over seventeen years, and the hive was quite rotten and the combs quite black with age, but we got them out all right, with a lot of stings for our trouble. I had two lots and united to an old queenless stock, but they all died the following spring. In 1888 I made a frame-hive myself, Standard size, 17 × 15 inside, which I put my first swarm in on the 10th of June. I also had another swarm and cast, which I gave away. I may also state my brother had a swarm in 1887, which he put in a bar-frame hive, but on the 16th of April, 1888, we found it queenless, with a fertile worker, but owing to my hive being smaller we could not work together to get a queen, so a neighbour had a frame of comb from the queenless stock and put in his hive, and got it laid full of eggs and put it back, but they would not get a queen, though we did it several times. I did not know then how to get rid of a fertile worker, but have since found out, which I will repeat for the benefit of others in a similar circumstance, should they ever have it happen so. Get a queen ready, and then take the whole of the frames out of the hive and shake them off about five or ten yards from the hive, and then, having your queen ready in your hand, take up your station at the entrance of the hive, and drop the queen in with the first batch of bees returning in the hive; she will go in with them to her new home, and when Mrs. Fertile Worker comes in they will bundle her out neck and crop, as you would see if you could watch them.

Well, we had several combs of eggs, but all to no purpose. We could not rear a queen, and they died about the middle of October, so that ended them. I have had to feed mine all this last autumn and also this spring, but they are all in good condition. I have now two frame-hives and two straw; the frame ones I shall prevent swarming if I can, the others I want to swarm to increase stock, hoping it will be a better season and brighter prospects. I have made a ½-inch thick stand for one frame-hive, with three strips under the bottom to rest on bars for bell-glasses 6, 8, 10 lbs. each, with tin slides.—M. J. Southam, *Waston, Bucks Bee-keepers' Association.*

DISADVANTAGES AND DANGERS OF EXCLUDER ZINC. (2085.)

[2098.] I have been driving four straw skeps into bar-frame hives. I have put to every one a drone-trap made by myself of perforated zinc. May 1st I drove a very good stock. On May 2nd the bees all came out, though they had feed-bottle on; the queen got through the zinc, and escaped. On the 13th I drove two more about 8 a.m., and put zinc at entrance as before. Going down to my bee-house at mid-day, I saw the queen on the ground with four or five bees around feeding her; she had escaped through the zinc. In the third one I saw the queen come out and go in again. The fourth one I did not notice anything. The queen on the ground I picked up and put her in a stone jar, up which she could not climb, while I opened the hive; I put her in then at top, and as soon as she entered they began to feed her, and from that time they are going on well. The first I lost, and almost the second. The second, third, and fourth have now got brood, and are doing well.

I shall never more believe in the excluder zinc, for I have this year seen brood in sections, nearly all full, waiting for swarming, and the swarm when it comes off, I believe, will be a very large one. I have made a wood-top hive, 17 × 18, with straw walls 16 × 11, so that I can put a crate of sections on top, and this, I believe, will be a very good hive, more representing my idea of a cottager's hive, to be used without excluder zinc. If any one has met with a similar experience, please write to the *Journal.*—M. H. Seamark, *Willingham, Cambs.*

Echoes from the Hives.

The Cross, Doune, 21st May.—Bees this season are in much better condition than at this date last year. Every prospect of early natural swarms. Last year I artificially swarmed three stocks, and did better than my neighbours as regards honey. This year three hives have section-crates put on a few days ago. Bees are at work upon them. One Heddon hive wintered on one body-box without autumn feeding, but with spring feeding, has now got two body-boxes, and in a few days I shall put on a crate of sections. Yellow broom, green kale, turnip, and apple blossoms are in beautiful flower, the weather sunny and warm, bees gathering an early harvest, and bee-keepers who have been attentive have every prospect of a season to make up for the past few years. If any readers of the *Journal* desire to know more of the Heddon hive, I shall be happy to give the information through the *Journal,* as I have no time for private correspondence.—John Main.

Waltham, Lincolnshire, May 28th.—We have had a glorious fortnight of bee-weather, broken last Friday (May 24th) by heavy thunder-storms. On Tuesday, the 21st, a good swarm was found by a woodman upon a low hedge. No one owned it, being a long way from habitation, so he procured a hive and safely took it. It is very early for this part of the country, as we are near the sea-coast and get late springs.—Bee-Kay.

Glencolmbkill, Oranmore, June 1st.—Last year, when all bee journals were complaining of the want of honey, we—a few bee-keepers in the wilds of Clare, of whom I claim to hold the leading apiary—were congratulating ourselves that our combs had as few empty cells as a Lisdoonvarna Spa hotel at the height of the season, and from those stocks that got fair attention an average of 50 lbs. of comb honey was taken, leaving plenty of winter store, and this spring they promised well. No deaths in my apiary and food to spare in March. But woe to the bee-keeper who, on the strength of such appearances, gives an order for 1000 sections, hoping to see them filled with something better than spider's web; for, while others are praising the weather, we have had, on the whole, a wet month, and the temperature as low as March. The hawthorn that made such a show last year is very partial this year, and lasted no time, so that, save in one apiary, I have not see any surplus honey stored, nor could I induce my lads to go up though I tempted them with sections of drawn comb of last year's extraction. 'Honeycott' says, 'Drones will be flying a month earlier this year than last.' This time last year I had many flying—not one yet. Apologising for so long an echo—T. B. O'Bryen.

Honey Cott, Weston, Leamington, June 3rd.—Natural swarms have just begun to come out in this locality, although they have been much retarded by the cold, wet, and stormy week just past, such a contrast to what it was the week before. Now, again, things look promising if we do but have nice weather.—John Walton.

NOTICES TO CORRESPONDENTS & INQUIRERS

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

Query.—1. When I find a swarm suddenly come off how can I tell from which of several hives it issued? 2. If I kill an old queen and introduce a capped queen-cell from another hive, will it be accepted, and how should I proceed?—Neophyte.—Reply.—1. *Obtain-*

ing information as to which hive a swarm issues from.—If you look in the hive you will see a great diminution in the population. The easiest way is to hive the swarm, leaving a few, twenty or thirty, of the bees behind, and dredging these with flour. Then remove swarm, say, into the house, of course covering them in the receptacle you hived them into, and watch entrances of hives. You will soon see some of the floured bees return to their hive, which will be the one from which the swarm issued. 2. *Introducing Queen-cell to Colony.*—The cell should be placed in a cell-cover; this is a piece of wire cloth made in the form of a cone, having the apex open just sufficiently to allow of the queen to pass through when issuing from cell, but fitting the cell closely at the sides. This prevents bees tearing the cell open, which they always do at the side.

QUERY.—Would you be kind enough to inform me through the *B. B. J.*, as I think it would be interesting to your many readers as well as myself, how to arrange the combs for ornamental honey letter-making.—HENRY WILSON, *Seaham Harbour, May* 29.—REPLY.—*Honeycomb Letters and Designs.*—Mr. W. McNally, Glenluce, N.B., has been very successful in his attempts in this direction; in the year 1886 he favoured us with his description as to his method of proceeding; this we reprint: 'Take a super made of $\frac{3}{8}$ wood, say $16 \times 8 \times 3$, outside measure, and you want the year 1886 built in it; get strips of foundation about one inch deep, draw out the shape of the figures in super; then fix the strips of foundation with a smelter in centre where the figures are to be built. Thus fixed, get thin pieces of wood separators about $\frac{3}{8}$ less in depth than the inside of the super, so as to allow the bees free access under; on these separators fix little corner-pieces to form the circles and bend in such a way as to prevent the bees from misshaping the figures. These blocks are then fixed in the super with fine brads, to draw out easily when the super is finished. Any letters or figures can be done by putting the foundation in the shape wanted, and filling up the interstices in the same way as already stated.'

FAIRSPEIR.—*Queen-rearing.*—Stimulative feeding should commence in March for the production of drones in one hive, and at the same time stimulate another hive for increase of workers. Then in April remove the queen from the last-named hive. These operations cannot be fixed by the almanac, but must be determined by the fitness of the stocks, the state of the weather, and the individual surroundings of the bee-keeper. The queen that has been removed, if of service, can at once head a queenless stock or a nucleus, as may be desired. The queen-cells can be introduced to nuclei after the ninth day from which they were commenced. Nuclei are best fed for a week or a fortnight until they are well at work. They want all the encouragement they can get. If cold, feed longer. Any stock from which it is intended to form nuclei should be fed up for that purpose. Your question as to feeding stocks can only be answered by the individual requirements of each stock. Recollect that a starving stock, or a stock living from hand to mouth, cannot give a surplus.

MALTA.—*Drones.*—1. The question as to the suitability and capability of drones raised from unfertilised queens or from fertile workers frequently comes before us. Authorities differ. Dzierzon holds that they are virile; Abbott contradicts him. Our opinion is that it may be possible, but certainly not suitable. We contend that no reproduction should take place except from selected pareuts. It is impossible to give a conclusive decision on the point owing to the difficulty of knowing with what drone the queen does mate. 2. *Fertile Worker.*—You can either break up this colony among others, or carry the hive some distance from its present stand. Shake ALL the bees from the combs, hive, &c., on to the ground; replace the hive on its stand, placing a frame of newly laid eggs from another hive in the centre. Examine in about three or four days, and you will most likely find queen-cells. You can then either introduce a queen or allow them to complete queen-cells. If the stock is short of food, feed them.

AMATEUR.—*Old Queen.*—Your queen has done her life-work; the sooner she is removed the better, and a younger one introduced in her stead.

T. B. O'BRYEN.—*Recipe for Carbolised Cloth.*—$1\frac{1}{2}$ oz. Calvert's No. 5 carbolic acid; $1\frac{1}{2}$ oz. of glycerine; 1 quart of warm water. The acid and glycerine to be well mixed, and the bottle to be well shaken before using. The cloth should be steeped in the solution every day, and spread over the hive on the removal of the quilt.

EAST DULWICH.—*Ants and Woodlice.*—These are very undesirable neighbours in hives. Ants are very fond of sweets, and often, when the stock is weak, crawl up into the hives and carry off quantities of stores. Turpentine rubbed on the stand and bottom of hive will cause them to leave. A chalk mark round the legs of the hive or round the entrance will prevent them ascending. Hives on legs can have a saucer of water placed under each leg.

F. S. COLLINS.—The comb forwarded is very old, but is not infected with foul brood.

MOORE AND TONGE.—1. *Drones turned out.*—This may be caused by the cold snap we have just experienced, but we should be under no anxiety. This is a matter we can safely leave to the bees. If you can do so, examine the combs and see if there be an undue proportion of drone-comb in the brood-nest; if so, remove it to the outside—it will do to store honey in.—2. The drones sent are Carniolans.

PUZZLED.—*Dead Queen.*—We have little doubt this is a newly hatched queen, but it is impossible to say to which hive she belonged, although probably to No. 3. The bees when fighting most likely caused her death. You did the best under the circumstances with the spare queen-cell.

F. HIRST.—We would recommend the schoolmaster to procure a diagram giving a representation of the various forms undergone by a bee from the egg to the imago.

MIDDLESEX.—1. *Increasing Population of Hive.*—Measures with this end in view should have been adopted in March by gently feeding the bees with *milkwarm* syrup *every* evening, and, as opportunity offered, spreading the brood. It is possible to build up a colony in six or eight weeks if you only know how. It is much more difficult to detail how than to do it, because so very much has to be governed by circumstances. Your bees ought to get in a fair amount of honey now, but be sure they do not go short. Insert a fresh frame with either comb or foundation in the centre of the brood-nest; in a week insert a fresh one, and if the queen keeps them well filled, give another the next week, and one again the week following, but they must never want for food for an hour even. 2. *Supering.*—The reason why it does not pay to super weak stocks is because a certain number of bees (about 10,000) are required for feeding brood and other home duties; and if you have only a weak lot the remainder have just about enough to do to provision the colony without attempting to store surplus in sections, at any rate. A weak colony will almost starve when a strong lot will probably give sixty to eighty good sections. 3. *Entrances* may be left full width till end of next September. 4. *Honey Flow.*—This stimulates queen and workers to do their utmost. 5. *Full Frame.*—So soon as the back frame is full you can remove it. Extract the honey and return frame to centre of brood-nest. Judging from your general description, we

should say you have not given the bees anything like room enough. Have you read Cowan's *Guide?* Apply for further help if you wish it.

SHOWS TO COME.

BEES, HIVES, HONEY, ETC.

June 24-29.—Royal Agricultural Show at Windsor. Entries closed May 1st. Secretary B.B.K.A., J. Huckle, Kings Langley, Herts.

July 24th and 25th.—Lincolnshire Agricultural Society at Louth. Entries close July 9th. Secretary, Stephen Upton, St. Benedict's Square, Lincoln.

July 31st and August 1st.—Glamorganshire General Agricultural Society at Treorky, Rhondda Valley. Secretary, D. P. Davies, Commercial Street, Aberdare.

August 6th, 7th, and 8th.—Yorkshire Agricultural Society, at Hull. Entries close June 29th. Secretary, Marshall Stevenson, York.

Business Directory.

HIVES AND OTHER APPLIANCES.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
APPLETON, H. M., 256A Hotwell Road, Bristol.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
BURTT, E. J., Stroud Road, Gloucester.
EDEY & SON, St. Neots.
GODMAN, A., St. Albans.
HOWARD, J. H., Holme, Peterborough.
HUTCHINGS, A. F., St. Mary Cray, Kent.
MEADHAM, M., Huntington, Hereford.
MEADOWS, W. P., Syston, Leicester.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
STOTHARD, G., Welwyn, Herts.
WALTON, E. C., 82 Emmanuel Street, Preston.
WEBSTER, W. B., Binfield, Berks.
WOODLEY & FLOOD, 26 Donnington Road, Reading.

HONEY MERCHANTS.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
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YORK, *May 18th*, 1889.

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THE NOTED 1a HIVE.

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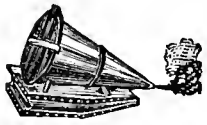

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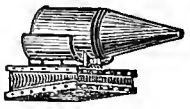

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Bingham Knives, 2/- each.
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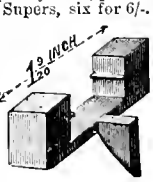
HEADQUARTERS for pure Foundation. The old-established house. Best Foundation of special analysed Wax, 1 lb., 1/11; 3 lbs., 5/3. Pure dark Foundation (recommended), 1 lb, 1/6; 3 lbs., 4/3. Finest Super (analysed), 1 lb., 2/5; 3 lbs., 6/9. Thin Foundation for wiring, 1 lb., 2/1. Wire, per roll, 6d. Woiblet Spur Wire Embedder, 1/-. Choice 1-lb. Sections, 4¼×4¼×2, 2/3 per 100; 9/- for 500. Stothard's Foundation Fixers and Guide, 1/-. The celebrated No. 2 British Combination Hive, with double sides, legs, deep roof, 11 wide shoulder frames, crate 21 sections, dummy and quilts, price 10/-; cannot be excelled. No. 10 British Simplicity Hive, planed deep roof frames, &c., price 5/-. Fine Straw Skeps, flat top, cane worked, 16/- per doz. Straw Supers, six for 6/-. Strong stocks Bees with Carniolan queens, ready first week in June, in complete frame-hives with nine combs, 30/- each. Crates of 21 sections, 2/3; crates of 18 sections, 1/10. The British

Cylinder Honey Extractor (every improvement) takes two frames; numerous testimonials received; 21/-. Little Wonder Extractor, 7/11—special value. Regulating Feeders, 1 to 9 holes, three for 3/-, best make. Phenol, 6d. per bottle. Wide-shoulder Frames, flat, 1/6 per doz. Best dovetail Standard Frames, 1/- per doz. Honey knives, 1/5. Very neat Labels, coloured, 4½d. per 100. Metal Ends, 5d. per doz. Parchment, ½ lb., 7d. Best Smokers and Guards, 2/6. Pine pattern Wire Veils, 1/9. Leno Veils, 10d. Fancy coloured Metal Section-cases, 2/- per doz.; 8/- for six doz. Postage on above articles extra.



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G. STOTHARD, The British Hive and Foundation Factory, Welwyn, Herts, England.
1st Class Expert British Bee-keepers' Association. A 1717

THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.'

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Editorial, Notices, &c.

EMINENT BEE-KEEPERS.

No. 5.—DR. LANGSTROTH.

As the Pastor Dzierzon has been by Continental bee-keepers worthily styled 'the father of progressive bee-keeping,' so the subject of our sketch, Dr. Langstroth, has by virtue of his invention of the moveable comb-hive, and the compilation of his book on the *Honey Bee*, been designated 'the father of American apiculture.' There is a great similarity between Pastor Dzierzon and Dr. Langstroth. The life of both has been devoted to the clerical profession; both are classical scholars; both have written works on bee-keeping; and both are still at a green old age, living in our midst, venerated and respected by all bee-keepers.

DR. LANGSTROTH.

Lorenzo Loraine Langstroth was born in the city of Philadelphia on Christmas day in the year 1810. The spirit of the day on which he was born, and that of the city of 'brotherly love,' seems ever to have animated him, for love to others has been the great characteristic of his life. In his early days he took an unusual interest in insect life. His parents were intelligent people, and in comfortable circumstances; but they did not encourage their son in his studies in natural history. They were not pleased to see him, as they thought, 'waste' his time in digging holes in the gravel walks, filling them with crumbs of bread and dead flies, and in watching the curious habits of ants. It is said that he delights now in his old age to recall to memory his boyish pleasure in watching the dwellings of ants, and in studying the wondrous habits of other insects. No books on natural history were ever placed in his hands; rather, every means were taken to discourage his 'strange notions.' But he could not resist the bent of his nature; he persisted in his observations, and devoted to them much of the time that his school-mates spent in sport.

In 1827, at the age of seventeen, he entered Yale College; and four years later, in 1831, he graduated. All that have read Langstroth's work on the *Honey Bee* have been charmed by the loftiness of its style and the purity of its diction, and they may safely argue therefrom that the time passed at College was conscientiously and industriously spent. His father's means having failed, he was considered competent to teach in the College in which he had received his education. He was for two years Mathematical Tutor in Yale College, and was thus enabled to sustain the expenses of his theological course.

In May 1836 he was ordained pastor of a Congregational church in Andover, Massachussetts. We may be well assured that Dr. Langstroth devoted himself with all his strength and assiduity to the duties of his lofty calling. In August of the same year he was married to Miss Anna M. Tucker, of Newhaven, Connecticut, by whom he had one son and two daughters. In his wife he secured a faithful helpmeet. During the severe illnesses to which Dr. Langstroth has been subject, she has carried on an extensive and arduous correspondence, and helped him considerably in his bee-keeping experiments and in the compilation of his great work.

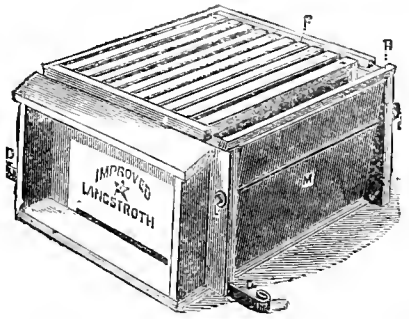
It is singular that, notwithstanding his passionate love for insects in his early life, during his College life he never took any interest in such pursuits. In 1837, the sight of a glass vessel filled with beautiful comb-honey on the table of a friend led him to inspect the bees of the latter, which were kept in an attic. This sight revived the enthusiasm of his early days, and he could not rest satisfied till he had purchased two colonies of bees, which were in box-hives. His knowledge of bee-keeping was very slight; Virgil, and the work of an American author, who doubted the existence of a queen-bee, being at this time his only instructors.

Two years later, in 1839, Dr. Langstroth's health became so impaired that he was obliged to relinquish his clerical duties. He removed to Greenfield, Massa-

chussetts, where he devoted much time and attention to bees. He gradually increased the number of his colonies, and sought for information on all sides. The *Letters* of Huber, and the work of Dr. Bevan on the *Honey Bee*, fell into his hands, and gave him an introduction to the vast literature of bee-keeping. From this time he gathered industriously the works of American and foreign authors on bees, and now he is the happy possessor of one of the largest apiarian libraries in the world.

After leaving his pastorate in Andover, he was chosen Principal of the Abbott Female Academy. Subsequently, he was selected Principal of the Greenfield High School for Young Ladies, and was for five years Pastor of the second Congregational church in that place. In 1848 he was again, on account of his failing health, compelled to resign his pastoral charge.

In 1848 he removed to the place of his birth, Philadelphia, and opened a school for young ladies. It was here that, with the help of his wife, he began to experiment with hives of different forms, but made no special improvements in them until 1851, when he devised the moveable comb-hive, used by American bee-keepers in



preference to all others. In his Journal, under date of October 30, 1851 (the day on which he devised his moveable frame-hive), we find the following remark: 'The use of these frames will, I am persuaded, give a new impetus to the easy and profitable management of bees.'

In regard to this invention, Professor Cook says in his *Manual*, page 283:—'In 1851, our own Langstroth, without any knowledge of what foreign apiarian inventors had done, save what he could find in Huber, and the edition of 1838 of Bevan, invented the hive now in common use among the advanced apiarists of America. It is this hive, the greatest apiarian invention ever made, that has placed American apiculture in advance of that of all other countries.'

This hive enabled Dr. Langstroth afterwards to make many remarks and incidental discoveries, the most of which are embodied in his work on the natural history of the *Honey Bee*. This work was first published at Northampton, Mass., in 1852, and in the preparation of it he, like Huber, received considerable assistance from his wife. A revised edition was published in 1857, and another in 1859, since which time it has not received any revision, though many copies have since been sold. Thirty years had elapsed since the issue of the last edition, when its revision was placed in the hands of Messrs. Dadant & Son. These gentlemen have ably performed their duty, and its information has been most efficiently brought up to the present time.

In January, 1852, Dr. Langstroth applied for a patent of his invention, but he has been deprived of all the profits arising from it, and the lawsuits in which he was involved have impoverished him, and been the source of much trouble.

In 1858 Dr. Langstroth removed to Oxford, O., where with his son he engaged in the rearing for sale of Italian queens. His apiary was large, and his sales of queens in a single year reached the sum of $2000. This at the present time may appear small, but at that time it was something astonishing.

The death of his only son in 1870, and of his wife in 1873, a severe form of head trouble, which often wholly incapacitates him for mental or bodily exertion (one attack having lasted for two years), together with a serious railroad accident, compelled Dr. Langstroth to sell his apiary in 1874; but he has seldom been wholly without bees.

Dr. Langstroth is represented as being 'a very superior-looking man. His physique is large and fine, his face kindly and intelligent, while his broad culture, pleasing manners, and delightful social characteristics, make him a charming companion.'

Dr. Langstroth is 'venerated' by American bee-keepers, who are fully aware of the great benefits they have received from his inventions. His health is very precarious. When able to attend the Bee-keepers' Conventions, all the bee-keepers are pleased to see and hear him, and all vie with one another how to do him reverence.

In 1887 Dr. Langstroth removed to Dayton, Ohio. His home is with Mr. H. C. Cowan, who married Dr. Langstroth's eldest daughter, and their large family add much to his comfort and happiness.

THE *BRITISH BEE JOURNAL.*

Reduction in Price.

We have for some time announced in our advertisement columns our purpose of issuing, from the 1st of July, the *British Bee Journal* at the reduced price of one penny. For many years it has been our earnest desire to see this result effected, and we are glad that we now have the prospect of reaching this the goal of our ambition.

Many of our present subscribers may not be aware of the various phases through which the *Journal* has passed. It was commenced in May 1873, and issued once a-month at the cost of sixpence per number. The object of its establishment was 'the free discussion of all theories and systems of bee-culture, and of the relative merits of all hives and appurtenances, so that the truth of them should be established.' This object we have kept steadfastly in view; the work accomplished by the *Journal* has been great and important; it has ever advocated the humane system of bee-keeping; it has fostered a new industry; it has given a new zest to the lives of many by enlisting their sympathies in behalf of the industrious insects the honey-bees; it has directed the attention of many artisans and agricultural labourers to a means of adding to their income; it has encouraged and supported the establishment of the British Bee-keepers' Association with its affiliated institutions; it has promoted agencies for the sale of honey; and it has evoked the zeal and energy of many to the development of apiculture as a science and an art. With so many ramifications of usefulness, it has from time to time been found necessary to make alterations in its mode of publication. After some years the monthly was converted into a semi-monthly; and in process of time it developed into a weekly publication. There have also been changes in its price. First it cost sixpence per number; then it fell to threepence; and from the year 1885 to twopence. But we are constantly receiving appeals to reduce

the price to one penny, so that it may be within the reach of even the poorest of bee-keepers. This, after much consideration, we have determined on; and as this is in a great measure an experiment, we consider that all bee-keepers have an interest in its result. We feel assured that we shall have their aid and their sympathy in making this endeavour on our part a success. We shall therefore be pleased to avail ourselves of their assistance; and we should be glad if all our subscribers would aid in the circulation of specimen copies and handbills, which we should be happy to supply for distribution. Many of our friends have already signified their readiness to assist us in this direction, and we should rejoice by their example being followed by others.

We have received numerous letters in reference to the weekly issue at one penny; our space would not allow us to give these at length. We give one, which may be taken as an example of the others:—'I trust that the alteration in price will not be attended with loss, and that by an enlarged circulation still more good will be done by what is undoubtedly the best bee paper in existence.'

PARIS UNIVERSAL EXHIBITION.

Our Paris correspondent writes:—

'It has been my intention for the past month to give you an account of the bee-keeping exhibits in the Paris Universal Exhibition, but day by day and week by week I have found nearly all of the departments so incomplete that I have been compelled to defer it.

'I may say that only three countries are at all completely represented. These are the United States, who have a general collection grouped together from all the principal manufacturers there; France, with one fairly complete instalment, but many of the goods in this are apparently of English manufacture; and Great Britain, represented solely by Mr. Thomas B. Blow, with a large and imposing collection of both appliances and honey and wax, also working bees.

'All the collections of bee-keeping appliances are situated in the Agricultural Galleries, which stretch right away from the main entrance of the Esplanade des Invalides to the Champ de Mars. For the guidance of English visitors who may wish to see the various collections of bee-keeping appliances I would advise that they should enter the Exhibition by the Invalides entrance, which is the one nearest to Paris, and is quite close to the Place de la Concorde. The Pont de la Concorde should be crossed, and the turn to the right taken (opposite is the Chamber of Deputies), and the handsome and imposing entrance is straight ahead. The Agricultural Galleries commence quite close to this entrance, and are altogether about one mile in length, and apart from bee-keeping are well worth a visit. Mr. Blow's exhibit is quite close to the entrance of the first gallery, and we are quite sure that he will be glad to be of any service possible to any English bee-keepers who may call upon him.

'The Swiss department is the first that we have examined in detail, and therefore we now describe it.

'For days and weeks past we have been in and out to see whether the exhibit of Mr. Zimmerman had arrived. In the official catalogue Mr. Zimmerman is described as exhibiting no less than 137 hives of all systems, but, alas! for human promises, there is only one bee-hive in the whole section, and that is by another maker. It would have been a real novelty to have seen 137 bee-hives at one exhibition, and would have filled pages of your *Journal*, but they are not there; and the officials, whom I have closely questioned, know nothing whatever about them. The solitary hive, exhibited by Louis Noverraz, of Pindoux Canton, Vaud, is a ten-bar hive with frames at right angles to the entrance standing on four iron cup legs so that petroleum or other suitable liquid can be used to keep out ants and other insect pests. It is exceedingly well made, but according to English ideas it is both clumsy and complicated. The frames are a bit larger than our standard, and some of them are made with both split tops and split sides, so that foundation can be secured at both top and ends. It contains plain dummies for summer use, and dummy quilts packed with jute or some such substance for winter. The spacing of the frames is by means of screw eyes at both the bottom and top of each frame. The hive body is made deep enough to take the super, and, therefore, the manipulation of the frames would be difficult on account of the great depth from which they would have to be drawn.

'The super crate is a very heavy, clumsy structure, with two wire handles to either lower it into its position or to draw it out: and if the bees in Switzerland propolise as much as ours I should imagine the drawing out of the super to be a work of some difficulty. The super is filled with frames which are shallow and hold sections. These sections are of native make, and are of four pieces dove-tailed together. The four-way sections and dividers with round holes in place of slots are used. Some of the sections are made in two halves, so that whole sheets of foundation can be secured. The whole is covered with a winter quilt about three inches thick, and packed with jute; and the roof is hinged and secured with a padlock. The whole affair looks very much like a hive built after much study of the *British Bee Journal* for the past two years, as there are so many of the ideas that have been there ventilated embodied in this hive, though in most instances clumsily carried out.

'J. J. Huber & Sons, of Mettmenstetten, canton Zurich, show a very large honey extractor on four legs, with top gearing—the cages (4) being large enough to take the biggest frames. It is well made and works very smoothly. The wax extractor that they show is an extractor combined with a boiler which is at the base made of copper. In place of the cage into which the combs are usually thrown for the steam to act upon them, this extractor has double sides with many rows of very fine perforations through which the steam issues in very fine jets direct on to the combs; the wax runs to the bottom, and is strained at the point of exit. It is a machine with several good points. On the table close by is a small collection of enemies of bees, such as death's head moth, wax moth, hornets, &c.; and in tubes, in spirit, are shown the various stages of growth of the bee from the egg upwards. Small appliances are also here such as feeders, diffusers, and smokers, but the only article worth detailed notice is a wax smelter with a small lamp under it, which is a very useful and efficient article.

'Siebenthal and Dallenge, of Ursins and Saubraz, near Aubonne, show some fine samples of Swiss honey in large capsuled bottles—each being labelled with the name of the plant producing it—the sainfoin and mountain honey being especially fine. They also show eau de vie miel, hydromel, and honey punch. These drinks were apparently in fine condition, but their owners not being at hand I was not able to taste them, so can say nothing as to that.

'Paul Gilet, of Montbovon, exhibits Alpine honey only, the height at which it was gathered ranging from 700 to 2000 metres. He also has comb honey, but it is of little merit.

'Jacob Caveng, of Ilanz, canton Grisons, has some fine samples of honey in bottles, holding from 7 to 8 lbs. His beeswax is not up to the mark in colour, though

the coat of arms of the canton Grisons, into which shape it is cast, is well done. He has a large quantity of vin de miel, which is very attractive in appearance. The only other exhibitor is R. Huber, of Urdorf, near Zurich, who has a variety of honey in screw-top bottles—differing much in appearance from the other exhibits. Next week I hope to describe the French or Italian section.'

BEE-KEEPERS' VOCABULARY;

Or, Glossary of Technical and Scientific Words used in Works upon Bee-keeping.

Comb-stand.—A stand for temporarily holding one or more combs when they are removed from a hive and until the bee-keeper is ready to return them; comb-horse.

Comb-starter.—See *Comb-guide.*

Combination hive.—A hive invented by Mr. C. N. Abbott having broad-shouldered frames, placed parallel with the front and entrance, in which are sections or frames for extracted honey which can be worked at the back, as well as sections on the top.

Commissural fibres. (fr. *L. commissura,* a thrusting together; and *L. fibra,* thread.)—Nerve fibres which unite, in one impression, the opposite halves of the ganglia.

Commons. *n. pl.* (fr. *L. communis,* ordinary, general.)—Worker bees were so called by ancient writers.

Compound eyes.—The large eyes situated on either side of the head, consisting externally of a large number of hexagonal convex facets. These are the outsides of bi-convex lenses, below which are the crystalline cones, then the great rods which perforate the basilar membrane and communicate impressions to the ganglia by a complex structure of decussating fibrils.

Compressor. *n* (*L.* fr. *con,* and *premo, pressus,* I press.)—A name given to those muscles which press together the parts on which they act.

Condemned bees. (fr. *L. con* and *damno,* I doom.) Bees that are doomed to be destroyed or consigned to the brimstone pit.

Coney. *n.*—A bee-hive. (Archaic.)

Congealed honey. (*L. congelo,* fr. *con* and *gelo,* I freeze.)—See *Candied honey.*

Connective tissue. (fr. *L. con* and *necto,* I link together.)—The external of the three layers which compose the walls of the dorsal vessel or heart.

Conoid bristles or hairs. (Gr. *konoeides; konos,* a cone, *eidos,* form.)—The cone-shaped, stiff bristles found in great numbers at the extremity of the antennæ, and which serve as touch-organs.

Consanguinity. *n.* (*L. consanguinitas, con* and *sanguis,* blood.)—Relationship by blood; relationship by descent from a common ancestor.

Constipation. *n.* (fr. *L. constipo,* I crowd.)—A crowding or filling up of intestinal canal, and inability to discharge fæces.

Constricted. *p.p.* (*L. constringo, con* and *stringo,* I bind.)—Drawn together; bound; contracted.

Constriction. *n.* A drawing together; contraction, as the constriction as a muscle or fibre; sometimes used as synonymous with *compression.*

Contractile chambers. (fr. *L. contraho, contractum, con* and *traho,* I draw.)—Having the power of drawing into smaller dimensions; the ventricals of the heart, or dorsal vessel, having valves at the sides and connected with each other by similar valves. See *Blood circulation.*

CENTRAL AFRICA.

In Tippoo-Tib's Country.

That same night, or rather in the grey of the early morning, a runner came into the village with intelligence that the chief of a neighbouring but larger township, was advancing to attack the chief. This piece of news fully explained to me the sombre thoughtfulness of M'tanzi. At once all was confusion. The prowess of Uluma, the invader, was known and feared. Hitherto with him it had been customary to come, and see, and conquer. As morning advanced, watchmen announced the approach of the foe. Then M'tanzi seemed to show the white feather. Silently the women and children were withdrawn into the forest, we being compelled to accompany them. The chief, with about fifty fighting men, his available force, armed with bows, spears, and nondescript weapons, only to be described as worn-out gaspipes transformed into muskets, brought up the rear. It was a painful and pitiable sight; the women, among them M'tanzi's favourite young wife, wept as the primitive village, home of their youth, scene of their early hopes and loves, as of late family cares and woes, was thus abandoned. But it was the leader's will, so we stealthily marched off into the forest.

From a slight elevation, securely hidden by mimosa-bushes, I had a good view of the place so lately left.

Suddenly, with a shout, Uluma and his followers dashed into the open, and, discharging a shower of arrows and musket-balls, rushed up to the stockade. No replying fusilade greeted them. This seemed to cause them some surprise, and, for a moment, they stood and looked at one another. Fine fellows they were; not a man of them stood under five feet ten inches in height. Their nearly black bodies, wholly naked, and smeared with rancid butter and red ochre, shone and glistened beneath the rays of the morning sun. A formidable foe. I felt thankful that we were not called upon to resist the attack of such redoubtable warriors.

I started and rubbed my eyes. What did I see? There was, yes,—surely there was, some one moving on the roofs of the huts. It must be said that the houses in this part are so built to the stockade that they form a sort of terrace. 'Theobald's' glass showed me that on this terrace a woman, aged too, I perceived, was walking. If it had been a man he would have been transfixed by an arrow; if a young woman she would have been seized; but, as it was an old woman, the soldiers disdained to notice her. She was carrying something carefully concealed in a blanket. At any other time I should have concluded that she was out on the 'loot,' but this was clearly impossible now.

Slowly, with faltering steps, the old woman approached the spot beneath which stood the puzzled chieftain with his followers. But, once arrived there, the beldame became transformed. With a swift movement, and with startling energy, she threw her burden into the midst of the ranks of the foe. Instantly all was confusion. The grave, stern warriors leaped and sprang like young roes on the mountains, and showed themselves more active than the most agile professor of the light fantastic art. They moved with leaps and bounds, rushed here and there like men demented, or stricken with witch-doctor's uncanny charms. In two minutes not one remained in the neighbourhood of the stockade.

But now I noticed that M'tanzi, with his men, had left their place of refuge, and became invisible. A little while elapsed, and then a wild shout of rage and fury, M'tanzi's war-cry, burst upon the ear. Then was heard the clash of arms, mingled with the shouts of the victor and the shriek of the vanquished. These soon became feebler, died away in the distance, and all grew still. Hours passed, then the victor, M'tanzi, returned. Joyfully the women and children rushed back into the

village. The victory had been complete. Of Uluma and his warriors not one escaped.

And now the mystery was explained.

The foe most dreaded by the African, when on the war-path, is the useful, toiling bee. It is plain that these insects, if once angered, would be able to impress many a good point on the naked skins of fighting men. Aware of this peculiarity of his countrymen, M'tanzi had succeeded in turning his knowledge to a good account. When he withdrew from the village, which his sagacity showed him was useless for the purposes of defence, he left behind him one of the old and useless women of his tribe—a weazened, fearless old hag—with instructions to throw down a prepared hive of bees on the heads of the attacking party at the moment when they should deliver their assault. This, he wisely argued, would disorganize them, so that he, taking advantage of their momentary panic, would be enabled to strike a blow which they would not readily forget. All fell out as the wily leader anticipated, and the bees, entering into the plans of this astute Central African Napoleon, fought as if the fate of empires depended upon the industry with which they plied their stings.

The victory was celebrated with war-dances, carousals, and drunkenness. I feared that, amidst this hellish saturnalia, our safety might have been endangered; but no one molested us. Unable to check such revolting revelry, thoroughly wearied, I withdrew into my tent, and at length fell asleep. And, as I slept, I dreamed that I was busily engaged in a Kentish orchard hiving a swarm of bees, which had been disbandoned after having served as special constables in London.—C. N. Barham (*Leisure Hour, June,* 1889.)

IRISH BEE-KEEPERS' ASSOCIATION.

The committee met on the 4th inst. Present—Mr. Read in the chair; Rev. P. Kavanagh, Dr. Traill, Mr. Gillies, and the hon. secretary. A sub-committee was appointed to draw up a programme of lectures to be delivered at various places during the season in the bee-tent.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 2nd page of Advertisements.)*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

HOW I BECAME A FIRST-CLASS EXPERT.

[2099.] 1. How I was led to become a Bee-keeper.—It was in the year 1879 that bee-keeping was brought under my notice by Mr. Cheshire, who delivered two lectures at the Normal School of Science, South Kensington, in connexion with a course of instruction in the principles of agriculture. The class was composed of teachers of science classes, under the department, besides a few students who were desirous of becoming science teachers. The syllabus in this subject includes bee-keeping, although I think that apiculture is now of sufficient importance to stand alone as a science subject. It at present receives but trifling attention by teachers of agriculture in these evening classes, probably because many are not practical bee-men, and so have given bee-keeping but small study. It would be well if this portion of the syllabus could be taken by some of our experts, instead of by the regular teachers. But to return to myself. I went back to Wilts with a copy of *Modern Bee-keeping*, a small piece of comb foundation, and some notes on bees. I had no desire as yet, or indeed any convenience, for keeping bees. Two schoolmasters in the place kept bees; both used skeps; one also used cheese-boxes; neither killed the bees, but depended upon supers for surplus. Whether it was a good district, I am unable to say, for not being a bee-keeper then, and not being interested in botany, I did not take that notice of the flora as I should now do, so much difference in one's powers of observation does bee-keeping make! One of the above adopted the Woodbury hive, and had one lot of bees driven and transferred by a clergyman then on a visit there. I did not see this operation, but *I afterwards wished I had seen it.* At this time I had seen very little honey, and tasted less, and I was afraid of being stung. Later on, being located in another county, and an opportunity offering, I bought a lot of bees in a wooden hive, which had a super on, without frames or sections. Whether it was a frame-hive or not, I never knew, for I never looked inside, and leaving there shortly afterwards, I sold it at a loss. The bee-tent being in the neighbourhood about this time, I might have gained some useful knowledge, but want of real interest in the matter, and fear of stings, caused me to neglect the opportunity. When I took up bee-keeping in earnest, I regretted this greatly.

Early in the next year I again attended a lecture by Mr. Cheshire at Kensington in connexion with the Institute of Agriculture, and afterwards saw him manipulate a frame-hive in the grounds adjoining the Natural History Museum.

In 1881 I came into Kent, to a parish well suited for bee-keeping, being a great fruit-growing district. Many cottagers kept bees in skeps, but no frame-hive. Here I was seized with the bee fever, and began to look about for a swarm to begin with. The Rector, hearing of my want, kindly gave me a swarm three weeks old. I got a carpenter to make me a frame-hive, after the pattern in *Modern Bee-keeping*, a single-walled hive, with a small window at the side. My frames I bought ready made up. Having fetched home the bees, I set about transferring them, with many doubts and misgivings as to the ultimate result. I had read up *Modern Bee-keeping*, and Cheshire's *Practical Bee-keeping*, and knew what I ought to do, if those bees would let me. But *would* they? Would they go out as the book said? Of course I should get stung. Did stings hurt so *very* much? How would they affect *me?* Should I swell? Perhaps all would go right. However, 'In for a penny, in for a pound.' I lighted the smoker, and got everything ready. Having put on a veil and a pair of woollen gloves, I gave a few puffs of smoke, and after allowing time to gorge turned up the skep. I drove them out, and threw them in front of frame-hive, and they ran in. I got some stings, which caused a little swelling, and determined to sacrifice the brood in the skep. This was, of course, a grave error, though I thought it of slight import then. There were about 3 lbs. of honey in the skep, which was all I got that season, for I had no extractor. I used a wooden crown-board in pieces, staples for spacing the frames, and plenty of smoke. Ah! that smoker! How often it went out in the midst of an operation! I used to look at the bees pretty often—too often, I expect, for their good; like many another novice. Sometimes I sat and watched them come home, and noticed the colours of the pollen on their legs. Sometimes I fancied I saw robbing, and closed the entrances, or put grass loosely in front. Once I made a drone-trap and captured some, and then saw some of the workers feed the prisoners.

I soon felt the need of more knowledge, and in August

I began taking the Bee Journal, which I have continued to do ever since, and from its pages I first learned that there were such persons as experts. How they became so I had yet to learn. I read every word, advertisements and all, in the *Journal*; and here, once for all, I must say that *without the Journal I should not now be a first-class expert*. Besides the 'Useful Hints,' and the mass of general information, one gets many practical 'wrinkles,' and gets posted up to date with the doings of the bee-world. Of several papers which I take in, I almost always read the *Bee Journal* first. As a pecuniary investment it has proved itself a paying one to me.

In the autumn I drove two stocks for a cottager, and united them. Before doing so, I removed one queen. As it was too dark to do it the same evening, I got up as soon as it was light next morning, and began shaking up one lot, and as the bees ran up the sides of the skep, I often saw the queen, but before I could catch hold of her with my clumsy gloved fingers, she was out of sight again. At last, after nearly an hour's patient work, I seized her. She slipped away, and flew on to my shoulder, and then to the hive-roof, where I caged her. The bees were safely housed before breakfast, and came through the winter safely, but weak.—ALADDIN.

(*To be continued.*)

JOTTINGS BY 'WOODLEIGH.'

[2100.] *Packing Section Honey.*—Back volumes of the *Journal* will answer ('Bee-Kay,' 2092) query *re* packing honey to travel safely under above heading; but if not taking up too much valuable space with a repetition, I will give 'Bee-Kay' my method of packing; and as I run my large apiary principally for comb-honey, I have had considerable practice in the matter. For an order for half a gross of sections I use a 1 cwt. Tate's cube-sugar box. First make holes at the ends and put in cord handles, then tie up your six dozen sections in single dozens in strong brown paper. Now spread a layer of, say, 1½ in. of meadow hay packing over the bottom of case; then place two dozen sections side by side, and with a piece of board pack some hay at the ends and sides, making all tight; then another thin layer of hay, and on it two dozen more of the sections, again packing sides and ends, and then another layer of hay and the last two dozen sections; fill up the box with packing, and *screw* on the lid, first nailing two ledgers across the pieces that form the lid, to strengthen same. Then cord it up and write your address in good bold style, and mark it conspicuously in *red*, 'Comb Honey. Handle with care.' These boxes only cost 6*d.* each. Smaller consignments of honey can be packed in same way in smaller boxes at a smaller cost. I do not myself make any charge for empties. I remember some kind packer at Newcastle show sent me some (grocers') empties back, for which the railway companies charged 2*s.* 6*d.*, carrier, 4*d.* — cost of said empties, 6*d.* or 8*d.* in the first instance. I too, like 'Bee-Kay,' live in a remote country district with poor communications with the provincial town, which is six miles from here, and the railway on the other side of the said town nearly seven miles. I find honey travels more safely by goods than passenger train, and much cheaper. If 'Bee-Kay's' customers do not object to paying for return empties, he may send his sections in cases showing the glass and combs, which he can make himself, lining the inside with strips of wood, forming the sides with felt carpet or cloth, and wedging his sections of honey tight with broken sections or pads of paper.

I notice my neighbour over the border ('A Hampshire Vicar,' 2093) relates the trouble he had through feeding honey to his bees. The same has been recorded many times before, but if the honey had been largely diluted with water and fed in *spring* the *contretemps* would not have happened; it is almost sure to start robbing if honey is exposed in or near an apiary, especially at the close of the season; but I have not found any disposition to rob through open feeding this spring with very thin syrup. One thing I noticed, that when the bees had been collecting the thin syrup very few bees visited the vessels containing water for some hours afterwards; and another caution I would add, it does not build up weak stocks so well as the bottle-feeding, for the simple reason that the strong colonies carry off the bulk of the food; so that I would counsel any one who may wish to give the system a trial to pay special attention to the weak ones, should there be any such in the apiary.

Wiring Frames.—I meet some bee-keepers who make quite a task of wiring frames and foundation. Perhaps a jotting on my method will not be out of place just now. Take, say, an Abbott's frame, and with a fine bradawl make four holes in nearly middle of top bar, and four in the bottom bar. Now take your wire, insert one end through the end hole, drive in a small gimp-tack, twist end of wire round the tack and drive it home; now thread your wire through the holes and finish off at the other end-hole by again twisting the wire round a tack and driving in tight, and then lay the frame on a piece of thin board cut to fit inside the frame, insert foundation in saw-cut or groove, and with a small spirit-lamp heat your embedder and run along the wire, pressing same into the sheet of foundation. I do not use any cross wire, only up and down.—WOODLEIGH.

ECCENTRIC SWARMING.

[2101.] What a great advantage it would be if some one could find out a really certain plan for controlling swarming! I fear that it is not to be expected, but it certainly would be most valuable. I have tried Simmins' and other plans, but they are only partially successful; when the bees once take the idea of swarming into their heads it seems as if nothing will prevent them, and sometimes they seem to act in a most unaccountably eccentric manner. One day last week two of my strongest stocks swarmed one after the other, but both returned, without settling anywhere, to their respective hives. I think that the reason of their return was that the wind was rather high, but they had not realised that it was so until they got fully out, as my hives are placed in a sheltered position. On the following day they swarmed again, both at the same time, and they settled down on a hedge at the same spot, forming an immense mass. I took about half of them and threw them in front of one of their hives, having previously cut out their queen-cells, intending to do the same with the other half, but, to my surprise, the second half followed the first of its own accord, and all entered the same hive together. Scarcely had they done so when a third hive swarmed, and the swarm went direct to this same hive, and entered it, or clung around its entrance, so that it then contained *three* swarms. It is a large hive, and was supered with two crates of sections. It was full before, but what must it have been after that addition? The next day I expected that it would swarm again, but I prevented it from doing so by changing its place with that of a comparatively weak stock close by, and I hope that it will now settle down to really hard work.

My bees are exceedingly strong; I have never known them more so, and they are working fairly at sections. They all survived the winter splendidly, but one hive was queenless.—A SUSSEX RECTOR.

THE FIRST SECTION (2094).

[2102.] I must inform you that I have had the great pleasure of taking off super honey even earlier than Mr. A. Rowe. On the 31st of May I took off one of Messrs. Neighbour's bee-glasses, No. 28, filled with beautiful honey. I consider it the more remarkable as it was off an observatory hive (one of Messrs.

Neighbour's), for, as a rule, the indoor hives do not work as well as these out-of-doors. I put another glass in on June the 1st, and it is now (in five days) nearly filled with comb and some honey already put in.

The stock of bees was put into this hive in the spring of 1888. I had a strong swarm from it in August, and I think they will swarm again soon. The hive is simply crowded with bees, and there is a frame containing six sections inside the hive, nearly filled with honey, which I hope will soon be sealed over. I have not fed for six weeks. You were good enough to publish my story of 'My Bees,' and those of your readers who read in it of my failures, will, I hope, congratulate me on my good fortune.—E. Bray, *Heathbourne, Wandsworth Common, S.W., June 5th.*

[2103.] On behalf of Suffolk bee-keepers, I must beg Mr. Graham to pardon my disputing the claim of the Edmonton section of June 3rd to be the first of the season. On May 27th I took a well-finished section $4\frac{1}{4} \times 4\frac{1}{4} \times 2$ size. On 28th I took three similar ones, and still continue the practice.—I. H. T., *Suffolk.*

[2104.] Mr. Graham says he took what he believes to be the first 1889 section on June 3rd. On 2nd June I took eight 2-lb. sections of the finest honey I have ever seen, and secured 6 lbs. more on 7th June.—East Molesy.

STRAY SHOTS.

[2105.] *Excluder Zinc.*—I notice the writer of 2098, p. 256, disapproves of the use of excluder zinc. Though not using it in the form of a drone-excluder, I use it over the frames, and do not find the queens ever pass through it into the supers, nor do I think that ordinary, properly bred, well developed, fertile queens could do so. Perhaps his excluding zinc is not true $\frac{3}{16}$ inch wide, as a fraction of an inch would make all the difference, and admit the queen. Unfortunately spurious excluder zinc is often sold as genuine. I have not seen the 'Raynor' yet, but if rather longer in the perforations (say an inch to an inch and a quarter long) than the old style, I think it would be an improvement.

Fairlawn Apiary.—I, like X-Tractor, have visited Abbott's apiary at Southall. I will do him the justice to say that when I saw it, at all events, it was not like others I have seen, seemingly uncared for. I remember visiting one whose owner is a great advertiser and writer in this *Journal*, and I have never forgotten it. Dealers should remember that filth, wax-moth, and hives that are gaping at every joint, and seemingly that have never been painted since they were first used, are not the most likely things to attract purchasers. The wax-moth and filth I saw there were a cantion, and all this mixed up with the things for sale. Perhaps I was an unexpected visitor, like I was at Southall; however, I saw sights!

The best Pasturage for Bees.—I, and I have no doubt others who cannot refer to previous volumes of the *B.B.J.* like Mr. Editor, would be glad to be able to purchase a list of bee-pasturage, published in the form of the *Guide-book* pamphlets.

Fixed Periods for carrying in Pollen and Honey.—By-the-bye, I do not know whether scientists fix a limit to the time the bees cease bringing in honey and pollen. Simmins, in *A Modern Bee Farm*, p. 24, says, pollen is brought in most freely up to 11 a.m., and that nectar dries up after 3 p.m., and that as a rule bees do not work freely after that. My bees (Ligurians, hybrid ditto, and blacks) commence long before I am up, and work till past 7 p.m., though most freely till about 5 p.m., and now work at the raspberries till past 7 p.m.

Ligurians versus Carniolans for Amateurs.—I have just heard of a bee-keeper of experience, who owns between forty and fifty stocks, chiefly on W. B. C. shallow frames, who has had already this year no fewer than six swarms from one Carniolan stock. How jolly for an amateur who is often obliged to be away to have cast after cast come off in his absence! To intending purchasers take Punch's advice—don't.—A Jersey Bee-Keeper.

EARLY HONEY.—LIGURIAN-CARNIOLANS.

[2106.] I had the pleasure of taking from one of my hives, populated by Ligurian-Carniolans, three pound sections of honey on the 31st May, gathered from apple, chestnut, and hawthorn bloom (sycamore bloom was a complete failure). They are of a fine colour and beautifully sealed.

Of course, these were not the only sections that the hive was supered with, and those which I have left on are for the greater part full, and only requiring to be capped. I am glad to be able to bear testimony to the excellent character of these bees, and to show how far superior they are to many other varieties.

I possess three stocks of this particular strain, one being the second cross, and the others the first; but as regards breeding and working there is not much to choose between them: they are exceedingly prolific and hardy, and the cappings of their cells are beautifully white and thick enough to prevent discoloration by the honey, and it is a comparatively easy matter to work them up to ten frames by the beginning of May, when at Dulwich we have abundance of the above-named trees in bloom. One of these stocks, which I will call No. 1, has unaccountably got the swarming fever, and I will just show how far this fever has affected them, and the means I have adopted to prevent them. Of course they first began to build queen-cells, in spite of a large super I had given them, so as I had an English hybrid stock that I had just swarmed, which I call No. 2, I took away the queen from No. 1 and introduced her into No. 2. Two days after while I was examining this stock, I dropped a frame—an accident that has only occurred twice in three years. It dropped out of the metal end (this danger is, I think, one of the greatest objections to the use of them), and the only bee I killed was the newly-introduced queen, so I turned to No. 1, from which I cut out two ripe queen-cells and put them into No. 2 to replace the dead queen.

The following day I again opened No. 1, and found a young queen, apparently about eight hours old; the bees had not allowed her to destroy the remaining queens that were still unhatched, so I removed her and gave her to a friend who was about to make an artificial swarm.

Now I have come to the conclusion that these bees would have issued as a virgin swarm, and as I am away from home all day, natural swarming of any kind is very objectionable to me on account of the loss I should surely sustain, so now having killed all but three of the remaining unhatched queens, I must let them take their chance, but at the same time, if I am fortunate enough to find the first born queen, I shall immediately destroy all the remaining cells and so prevent an undesirable increase of colonies in my apiary. I must finish these remarks by thanking you for the many useful and valuable hints that I have received from the *B. B. J.* and trust that 1889 will prove a year to be remembered with pleasure and thankfulness by all bee-keepers.—Edwin Thomas, *East Dulwich, June 1st.*

P. S. Since inditing the above, the bees of No. 1 hive have swarmed twice; they first issued on Sunday morning at 9.30, but just before they settled they altered their direction and returned to their hive; they issued again at 4.30 p.m., so I placed them in a new hive and upon their old stand, shifting the stock some few yards away, I trust that they will now settle down and make good use of the glorious weather we are now enjoying.

WASPS IN BAR-FRAME HIVE.

[2107.] In my last report I stated that there was no perceptible alteration in the outward appearance of the nest from the one given in the *Bee Journal* of May 30th. I have again taken measurements, and on comparison I find that such is again the case, with the exception of the dome, which has been brought down a little, and measures 1⅛ in. in length. In other respects it is the same as given in above mentioned report.

No worker wasps are yet flying, but I think they will be by another week, for I can perceive a comb sealed over with a thin, white, paper-like covering.—C. C. Moore, *Altrincham, June 10th.*

Echoes from the Hives.

Market Rasen, June 5th.—On the 4th I had a wonderful example of bees sending out scouts before swarming. About 9 a.m. I observed bees very busy about an empty bar-frame hive. This being very unusual, I looked under the quilt, and satisfied myself that they were only strangers. At 10 a.m. I observed a swarm crossing the garden. I closely watched their flight, and to my satisfaction observed them descend directly to my hive. Fortunately the hive was ready to receive them, with clean combs and full sheets of foundation. I afterwards ascertained that a skepist had followed the bees from a village more than a mile distant, and only lost sight of them two fields from my apiary. He remarked that he never saw so large a swarm.—Member B.B.K.A.

Combe School, Woodstock, Oxon, June 6th.—I picked up a *drone* to-day at 3 p.m., close to a bar-frame hive, which I have sent to you. I should be much obliged if you will kindly examine it for me, and give your answer in the *Bee Journal* next Thursday, if possible. Having often read in the *Bee Journal* and bee books about the mating of queens, I have every reason to believe that *this* drone has mated with a young queen. To-day, drones are out on the alighting boards of my apiary in great numbers, for the first time this season. We have had grand weather since June set in, and the remaining stocks left from the never-to-be-forgotten disastrous season of 1888, are swarming about here in great numbers. Last Sunday was a grand swarming day in this district.—Thos. Hughes.

[We are of opinion that your surmise is correct.—Ed.]

Waltham, Lincolnshire, June 8th.—Had a good swarm from my own skep on Tuesday, 4th. Supered a 'Buncefield' hive on May 24th, and found on June 3rd it was necessary to lift it, and put a crate of empty sections underneath. I also supered another hive on the 3rd. All my bees are working well, and gathering honey despite the cold, wet spell of weather from May 24th to May 31st. Heard of three swarms in the village the same day as mine, but two returned to their old quarters. I hear of losses all round me either during the winter or spring.—Bee-Kay.

World's End, Newbury, June 10th.—The few fine days of bee weather have been brought to an abrupt termination by a succession of thunderstorms on the night of Thursday and early Friday morning. Friday afternoon was fine and warm, but was succeeded by a heavy storm of rain, accompanied with vivid lightning and thunder, like the sharp crackling discharge of musketry, followed by a low temperature and consequent quietude in the apiary, during Saturday, Sunday (Whit-Sunday), wet all day, dull and cold, making a fire in sitting-room very cheerful and acceptable. Swarming pretty general during past week from strong colonies, when weather was suitable, and crates of sections made fair progress. I do not anticipate a large harvest of honey this season, from the fact that our friends the farmers have cut their fields of sainfoin so very early, even before a blossom was out in some instances, the reason is that last season being so wet, the sainfoin fields are choked up with common lop grass, and it is cut early to prevent the lop grass seeding and destroying the sainfoin plant for another year. Sainfoin is one of our best honey-producing plants in this district.—W. Woodley.

Marnwood Farm, Ringway, Cheshire.—The last few days have been remarkably cold here, causing the bees of course to remain at home, giving, I hope, only a temporary check to honey-gathering. We have six stocks—four English and two Carniolan—all of which are doing well. The Carniolans are apparently going to leave our native bees behind—that is, if numbers and early and late working are anything to go by. They are astir long before our blacks deem it wise to turn out; and if the old rhyme 'Early to bed,' &c., be true, surely it ought to be doubly so when late to bed and early to rise is put into practice. However, we are giving both a fair, impartial trial, and we shall be able to speak as to the relative merits of both when the season closes. We intended testing them last year, but as the honey season turned out so wretchedly bad we could not well do so. The queen of one stock we procured direct from Carniola, the other one we have bred, and she was mated by one of our Carniolan drones, so that both stocks are pure. An English stock is filling us a glass super, and if the weather would only turn warm honey would come in in abundance. The late winter has been disastrous here for bee-keepers, especially those of the 'old school.' One man had twenty stocks last year, and has lost all; another keeper's bench, containing his all—namely, five—is silent; while another, who is very clever in his own estimation, and is never tired of ridiculing the modern modes of bee-keeping, out of a stock of fifteen hives is reduced to two. On a friend of mine telling him that we had only lost two stocks, and contrasting it with his great mortality, he got out of the difficulty with an ingenuity worthy of being recorded in the *Bee Journal*. He said, 'I'm not sorry all my neighbours' bees are dead; I wish it had occurred years ago.' 'Why,' asked my friend, 'do you want to lose your bees?' 'I dunno mind losing my own, so long as I have ner other folks' to keep. You see, when I feed my bees with my sugar, other folks' bees comes and fetches it.'—M. and T.

NOTICES TO CORRESPONDENTS & INQUIRERS.

A. G. F. H.—*Combs built across the Frames.*—The whole of the frames should be lifted out *en bloc*, and the combs cut out and tied in their respective frames. This could easily be done by any one used to handling bees. It is best done now, as the combs are not overloaded with honey, or, better still, three weeks after issue of a swarm.

M. S.—*Moth in Hives.*—A strong colony, especially Italians, will not allow moth inside the hive to be a detriment, that is in Great Britain. They would not be the cause of the death of your stocks. Your hives died of spring dwindling, which was exceptionally prevalent the last spring. Combs slightly affected with moth will soon be cleared by the bees if a good strong swarm is placed on them.

Mrs. P. B.—*Name of Expert.*—The nearest on South Eastern Railway is W. B. Webster, Binfield, Berks. *Failure of Stocks last Season.*—Consequent of the exceptionally bad season of last year the honey crop was a complete failure in England, and thus thousands of stocks perished during the winter. If you obtain some more bees, no doubt, the coming season giving evidence of being very good, you will be more successful and reap some of the, till now, lost capital.

J. B. R.—*Killing Drones.*—This points to a shortness of stores, the bees always commence killing drones at

this early season when stores are getting low. The excluder zinc will not prevent swarming, it is only for the purpose of preventing the queen going up into the sections. Try them without the excluder, as this frequently retards the 'going up' of the bees.

JASMINE.—*Preventing Casts.*—Bees do nothing invariably, but the most certain way to prevent casts is to remove the parent stock directly it has swarmed to a new location, and place the hive containing the swarm in the position vacated by the parent stock. The parent stock is so weakened by the loss of the swarm and also the flying bees that they give up all notion of casting.

G. N. BARRETT.—*Bees dying.*—There must have been some deleterious ingredient in the spraying solution to cause so much mortality. We have heard of a similar case, and could then only trace it to the acid used in the solution. Nothing else would cause so great a disaster.

R. J. F.—*Moving Bees.*—Under the circumstances we would risk the loss of a few bees, and take the bees to their destined locality. Great care should be taken to make their exit difficult, by having a board before the hive-front to call the attention of the bees to their new position.

EDWARD T. BILLINGS.—*Moths.*—We regret that you should have allowed the wax-moth to have attained the mastery over your bees. The larvæ should be promptly destroyed by crushing them, or by pricking them out with a pen-knife. They can be destroyed by fumigation. If their presence has caused the bees to dwindle, it might be better to melt the combs. See also reply to M.S.

*** *Some replies are held over till next week.*

SHOWS TO COME.

BEES, HIVES, HONEY, ETC.

June 24-29.—Royal Agricultural Show at Windsor. Entries closed May 1st. Secretary B.B.K.A., J. Huckle.

July 24th and 25th.—Lincolnshire Agricultural Society at Louth. Entries close July 9th. Secretary, Stephen Upton, St. Benedict's Square, Lincoln.

July 31st and August 1st.—Glamorganshire General Agricultural Society at Treorky, Rhondda Valley. Secretary, D. P. Davies, Commercial Street, Aberdare.

August 6th, 7th, and 8th.—Yorkshire Agricultural Society, at Hull. Entries close June 29th. Secretary, Marshall Stevenson, York.

Business Directory.

HIVES AND OTHER APPLIANCES.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
APPLETON, H. M., 256A Hotwell Road, Bristol.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
BURTT, E. J., Stroud Road, Gloucester.
EDEY & SON, St. Neots.
GODMAN, A., St. Albans.
HOWARD, J. H., Holme, Peterborough.
HUTCHINOS, A. F., St. Mary Cray, Kent.
MEADHAM, M., Huntington, Hereford.
MEADOWS, W. P., Syston, Leicester.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
STOTHARD, G., Welwyn, Herts.
WALTON, E. C., 82 Emmanuel Street, Preston.
WEBSTER, W. B., Binfield, Berks.
WOODLEY & FLOOD, 26 Donnington Road, Reading.

HONEY MERCHANTS.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
BALDWIN, S. J., Bromley, Kent.
EDEY & SONS, St. Neots.
HOWARD, J. H., Holme, Peterborough.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.

FOREIGN BEES AND QUEENS.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
BENTON, F., Laibach, Carniola, Austria.
EDEY & SONS, St. Neots.
HOWARD, J. H., Holme, Peterborough.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn

METAL ENDS.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
EDEY & SONS, St. Neots.
GODMAN, A., St. Albans.
MEADOWS, W. P., Syston, Leicester.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.

COMB FOUNDATION.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
EDEY & SONS, St. Neots.
HOWARD, J. H., Holme, Peterborough.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
STOTHARD, G., Welwyn, Herts.

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Entries Close on Tuesday, July 2nd.

Schedules can be obtained from Mr. WM. HARLAND, RIPON, *Secretary*.

Division 14.—HONEY, BEE APPLIANCES, &c.

The following (open to all England) Classes have been recently arranged:—

Class.	1st.	2nd.
1. For the best collection of Hives and Appliances	20/-	10/-
2. For the best and most complete Frame-hive, price not to exceed 15/-	7/-	3/-
3. For the best and most complete Frame-hive, price not exceeding 10/-	7/-	3/-
4. For the best Honey Extractor	5/-	2/6
5. For the best Section Crate	5/-	2/6
6. For the best Feeder for slow stimulating feeding	3/-	2/-
7. For the best Feeder for quick autumn feeding	3/-	2/-
8. For the best Smoker, filled with the fuel proposed to be used, suitable for burning peat-wood or other fuel	3/-	2/-
9. For the best 12 sections, $4\frac{1}{4} \times 4\frac{1}{4} \times 2$, of Comb-honey	7/6	2/6
10. For the best 12 1-lb. glass jars of run or extracted Honey	7/6	2/6
11. For the best exhibition of Honey from one Apiary	7/6	2/6

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YORKSHIRE AGRICULTURAL SOCIETY.

Patron: H.R.H. THE PRINCE OF WALES.
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The Fifty-second GREAT ANNUAL SHOW

Will be held at HULL,

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MARSHALL STEPHENSON,
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YORK, *May 18th*, 1889.

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THE NOTED 1a HIVE.

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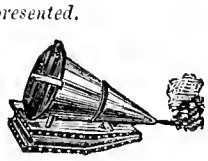

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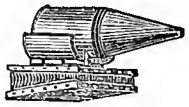

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Standard Frames, 1/- per doz.
Parchment, 1/2 per lb.
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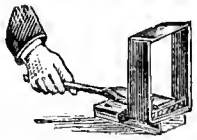

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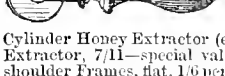

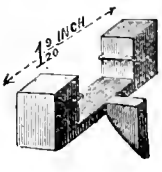

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THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.'

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Editorial, Notices, &c.

WINDSOR EXHIBITION.

The Secretary of the British Bee-keepers' Association will be glad to receive any consignment of bee flowers for the embellishment of the Bee Department of this Exhibition, to be despatched so as to arrive on Monday next or any following day. The Association will be glad to pay carriage on all such parcels, to be addressed

THE SECRETARY,
Bee Department,
Royal Agricultural Show Ground, Windsor.

A few such consignments would help the Exhibition very materially.

A VISIT TO MR. J. H. HOWARD'S APIARY, HOLME.

We were aware that apiculture had made rapid strides during the last dozen years, but we must admit that we had no idea that it had become so great a science until we visited Mr. J. H. Howard's apiary at Holme recently. The fame of Mr. Howard's bar-frame hives and bee-keeping appliances is, of course, known far and wide, but very few persons in this district, we venture to say, have any knowledge of the wonders of his apiary, or, indeed, of the fascination attaching to the art of bee-keeping. Dropping in the other day at Mr. Howard's —which, by-the-bye, is but a few steps from Holme Church—we were fortunate enough to find the genial 'expert' at home, and in a few minutes were being initiated into all the mysteries of bee-culture. The apiary, we should state at the outset, is constructed at the border of a very pretty garden, and is arranged so that the hives face the south, south-east, and south-west, it being the best plan to 'set' the bees so as to have more than one aspect. All Mr. Howard's hives in the apiary are on the bar-frame principle; the old pattern hives and straw skeps stand about here and there in a well-kept flower-garden adjoining his residence.

In surplus honey gathering everything depends on having a young queen, and when a queen is used up, as is the case where bees are managed on non-swarming principles, to be thoroughly successful a bee-keeper should have a knowledge of rearing queens, so that he may replace the old one. Several hives are set apart by Mr. Howard for the rearing of queens alone, and he sends by post many young queens to customers who practise not queen-rearing. He obtains his stock from all parts of the world. Cyprian and Carniolan bees, Mr. Howard informed us, cross very well with our own black bee, but the 'Native' has the preference, and the bee-keeper who gets a good variety of bees is most likely to get a good race of honey gatherers. Having, by the advice of our guide, donned a veil as a protection against a chance sting, we accompanied Mr. Howard—himself without any such 'armour'—to one of the queen-rearing hives. From a spray diffuser charged with weak carbolic acid solution, the expert sprinkled the bees, and having thus alarmed them, he gently drew out one of the frames, and showed us the acorn-shaped cells in which the queens were being nurtured and reared.

It is extraordinary how easily bees are subdued, and an expert manipulator, having sufficiently alarmed them, may, by treating them gently, do almost what he pleases with them without the slightest fear of being stung. Queen-rearing is a very large subject, as may be imagined when we say that Mr. Howard has lectured upon it for three-quarters of an hour, and then the subject remained unfinished. Our visit clearly proved Mr. Howard to be a master of the art of bee-keeping in all its branches, without the certificates held by him under authority from the British Bee-keepers' Association. To replace an old queen by a younger one requires some little tact, and for this purpose Mr. Howard has a skilful little contrivance. Bees are above everything patriotic, and having once given in their allegiance to a queen they will tolerate no pretender to the throne, save when from knowledge they are about to discard the old queen, from age or other causes, she having become unfit as mother of the colony. They are evidently aware of the fact that if two ladies are at the head of the house there will be no agreement; but, be this as it may, they will not, in a normal condition, allow two queens in the hive, and until the old one is removed the young queen cannot be introduced. Mr. Howard's plan to re-queen is a simple one. He removes the old one in the morning, and at mid-day, placing the 'heir apparent' in a little perforated tin cage, two-thirds filled with sugar and honey mixed, he inserts it in the hive, and at night-fall when all is stillness, both in and out of the hive, a wire is withdrawn which gives the bees access to the cage. The bees 'nibble' their way through the sweet mixture until they get to the top, and as they are then 'gorged' and thoroughly good-tempered they take no notice of the interloper. When they make their way back the queen goes with them, and in the scramble she passes unnoticed to the duties of future mother to the colony.

A day or two after an unfertilised queen is introduced she ventures out for her 'wedding trip,' but is often lost, especially if her home is not well marked, sudden winds and birds often preventing her return. Of this we had an instance on inspecting with Mr. Howard one of the ordinary hives, where an unfertilised queen had been received. Our guide soon discovered that the queen was *non est*. She was a very fine home-reared

Cyprian queen, he informed us, and was from the egg of a first grade, which had cost him twenty-five shillings. That she had been absent some little time was apparent by the fact that the inhabitants of the hive were constructing queen-cells. In another hive the queen was quickly found, and we were shown the larvæ and eggs she had deposited as her first work, but the modesty of her majesty was remarkable, for she persistently endeavoured to escape 'the gaze of man' by running from one side of the comb to the other immediately it was turned round to view.

Strolling round the garden Mr. Howard points out that the flowers are merely planted to give picturesqueness to the apiary, and are but of small service to his number of colonists in pollen and honey yield; also that in an open country they are not strictly necessary, as the bees go abroad for their honey.

Passing into the manipulating house, in the centre of the apiary, Mr. Howard showed us some good specimens of honey, both extracted and in comb, and many of his ingenious appliances, amongst them being a combined 'smoker' and fume chamber for quieting the bees, a knife-heating apparatus, and a stand for holding the honeycomb while the cells are uncapped before placing into a machine for ejecting the honey. This process must be very economising to bee life and labour, as when an extractor as perfected by Howard and Meadows is used, such as shown us, not a honey cell is displaced, and the empty comb is reinstated, thus saving secreting of wax by the bees, and time also in reconstructing cell-work. It is a known fact that about 15lbs. of honey is consumed to produce 1lb. of wax. There were many other accessories of the apiary, too numerous to mention, leave alone explain. In this manipulating house foreign and home-reared queens are handled, nuclei arranged, queen-cells inserted, queens packed and caged for post, honey extracted, and much other work of the apiary executed. The house is of original design, and its arrangements for the escape of bees, when each operation is finished, reflects great credit and ingenuity upon its designer and owner. Mr. Howard here explained to us fully—and no amount of reading could have impressed us so much—the great advantage of the bar-frame hive over the old straw skep.

Going on to the workshops, we find the steam machinery busily at work. Here are saw benches and every pattern saw for cutting off hive materials, also for working to any angle from a given base. A machine for planing and thicknessing, another with tilting table to a cutter-head on vertical spindle, which is easily set for planing to exact length material of any size or thickness. This machine also does rabbeting, cross-grooving, tongueing, ploughing, and can be set to cut mitres at any angle to a certainty not equalled by hand labour. A band-saw for circular work and benches for cutting the 'Howard' section and the sundry pattern bar-frames, completes the machine shop. We then inspected the various original inventions brought out by Mr. Howard, and some of his new pattern hives, frames, extractors, feeders, &c. One hive shown us—the 'Paragon' Tiering Hive—in principle seems destined to be of no small service to those bee-keepers who have an eye to the non-swarming of bees, and who prefer hives interchangeable from and in any part of the apiary for either comb or extracted honey production. Mr. Howard has been very successful in exhibiting at the Royal and other Shows. In 1888 Royal, his inventions and manufactures were awarded two silver and one bronze medals, and one certificate, besides other honours for honey productions and appliances. He assured us that honey-producing pays thirty-five per cent, though he modestly puts his profit upon appliances manufactured at fifteen per cent. We would here note the arrangements for producing comb foundation. Steam pipes are connected to a boiler in which wax melting and clarifying are both carried out. For brood foundation a dipping-tank, holding one and a half cwt. of molten wax, is used, for super foundation a smaller tank. Both these are connected with steam for keeping wax at proper temperature, while wax sheets, of even mould, are dipped therefrom upon boards of special size and preparation. Water, too, is boiled in another tank by steam for the purpose of softening wax-sheets ere they pass mills (of which Mr. Howard has various cell patterns), receiving *facsimile* impresses of the natural honey cell. From one mill even the walls of the cell were partly constructed. As such an amount of wax used is not to be produced from any one apiary Mr. Howard informs us that he buys imports from Jamaica, as well as all the English beeswax he can get hold of.

In the garden, near his residence, Mr. Howard showed us the first bar-framed hive he made—the so-called 'dog-kennel'—and which was only a quarter of an inch out when the British Bee-keepers' Association issued a standard measurement. Our visit then terminated, and we left Mr. Howard with many expressions of thanks for the interesting entertainment he had given us at his 'Apiary of Apiaries.' We may add that Mr. Howard's 'legitimate' business is that of a builder, and that his apicultural surroundings are the outcome of the love he bears for the pursuit. He has received much encouragement from his landlord, W. Wells, Esq. (now deceased), of Holme Wood House, to whom he admitted his indebtedness.—*Hunts Standard.*

USEFUL HINTS.

Swarming.—We have now reached the height of the swarming season, therefore we think that the paragraph in 'Useful Hints' relating to same should take precedence at such a time before all others. 'How am I to hive a swarm?' 'How can I prevent absconding swarms?' 'How am I to put a swarm in a frame-hive?' These are questions we receive in numbers every post. Well, to answer all these separately *in extenso* would necessitate a biggish staff of clerks, which we have not at our command; so to satisfy all—of course, all bee-keepers read the *B. B. J.* or ought to, though that's not quite the same thing—we will enumerate a few of the best plans to meet the wishes of the uninitiated. Each one has been tried in our own apiary, and this not a little one, with eminent success. We never have such a thing as an absconding swarm—first swarms, we mean. Second swarms or casts we have abolished altogether from those hives run for honey only. Of course, in the queen-rearing apiary a 'turn-out' of a nucleus is no rarity, and in some cases a cast from the drone-rearing hives; but these latter come in useful. How to hive a swarm, that is the first step. Our forefathers just went to the bough upon which it settled, and after anointing (ugh!) the hive, shook the bees in and turned the whole lot topsy-turvy, when the bees clustered in the roof of the skep, as that was the darkest place anywhere near; bees in a state of commotion always go to the dark if a number are together. Sometimes the bees thus treated flew out again and were lost, much to the chagrin of the bee-keeper who at eventide went to see how they had got on during the day. We alluded to the above as the doings of our forefathers; it is in many cases the same to-day. Only last Saturday, the 15th inst., we went to fetch two swarms we had promised to buy from a neighbouring farmer. First one skep was turned up; nothing in it. Then the second; ditto. That farmer was 'riled' just a little. Only that day we had told him what to do, but no, his progenitors had hived bees as he did, and he was going to do the same; at least he did not say so, but he acted it.

Well, to get along a little, we will suppose a swarm has settled on a convenient place—sometimes they don't—just quietly look it over for a minute. There is the

queen! You are sure to see her about one-third up the swarm running in and out among the bees. Pick her up gently, if you can by the *two* wings, and put her in a cage, and just fix this with a piece of wire or a nail through the hole in the skep; put a handful of bees in, and when they have caught hold on the inside of the skep, gently turn it over on the ground close under the swarm, propping it up an inch or so in front, or all round if you like. Give the bough a violent shake, pop your carbolised cloth or piece of paper on the bough where the swarm clustered and the thing is done. Go your way and finish whatever job you have been disturbed from. In ten minutes or so the swarm is comfortably settled in the skep. Now, what is easier? That swarm won't abscond while the queen is caged, but you don't want to keep her 'mothership' tucked up in so small a compartment, so tie up the skep in a strainer cloth, let loose the queen, and carry the lot indoors until the evening—mind and keep them in a cool, dark place. When evening arrives, take a comb containing some uncapped brood—eggs won't do, capped brood ditto—place this in the frame hive, arrange your other frames, run in the swarm at the entrance. You will never lose that swarm. But many will say, 'What are we to do if we wish to hive this on the parent stand and place sections on at once?' Answer: Don't take it indoors, but hive it in the same manner as before described for the evening. Yet often when so doing, unless precautions are taken, they take flight again.

We remember being 'called over the coals' at a meeting of the B. B. K. A. when advising the running in of a swarm directly it was hived. It entirely depends as to how you throw the bees down from the hiving receptacle on to the board in front of hive. Follow the following instructions and your swarm will run in quite respectably. Gently take up the swarm and with the slightest of jerks precipitate a few, say a double handful, of bees on to the board. Now wait until these few commence to run in rapidly—hold the swarm as far away from them as possible or they'll run to that—directly this occurs roll your swarm backwards and forwards between the palms of your hands until presently, by this motion, a 'lump' of bees falls on to the board. These will instantly take up the 'running' and follow their brethren into the hive. You can now jerk the swarm pretty violently so as to throw down larger and larger quantities of bees, as there being a continual stream of bees going into the hive no matter how many you throw down they are sure to follow, the in-going bees having given the signal of having found a suitable location. We firmly believe in the theory—our own experience justifying us—that bees send out scouts to find a location, and these returning to a swarm hived and allowed to remain close to where they first settled, lead them off to places unknown—at least to the owner. Where a swarm settles high up in a tree we use a swarm-catcher, which acts upon the same principle as we have advised, that is, it cages the queen, hence the bees will not abscond. We have never seen a first swarm go straight away without first settling: no doubt there have been cases: in such an event good-bye must be said to the swarm unless one is sufficiently agile to follow it for one or two miles across everything.

The Honey Flow.—Honey has been, for three days, 15th, 16th, 17th, coming in at an enormous rate from Dutch clover. We just had a peep at one hive; it did the heart good to see the glistening cells, not having seen such a sight since 1887. A test hive gained 9 lbs. on the 15th inst. Do not be afraid of giving too much room in the sections; though they may appear sparsely populated during the day, at night you will find them crowded. Frames capped over can at once be extracted, and returned to be refilled. 'Hit the iron while it is hot;' remember we must make up for the loss during 1888. 1889 appears smiling and redundant with the sweet nectar in the flowers. Don't lose a scrap of it by any inattention. Those who have kept their bees alive during the last winter will now, if only this fine weather lasts, be able to rub their hands and chuckle to their heart's content at their good luck—No! not 'luck;' perseverance and energy.

Windsor Show.—Next week the great show of the year will be in full swing, when we hope to see most of those friends who, through the distance that separates us, we have not seen for a year, and with them compare notes as to what we have done, and what we intend doing with our little friends the honey-bees.

Selected Queries.

When adding an additional super to a hive, do you think it best to put it over or under the one already on? State your reasons for your preference.

I think the bees fill a second super more quickly if placed under the one already on, but from the exposed position of my apiary I seldom venture on any tiering-up.—W. E. Burkitt.

I prefer to put it over the one already on, for the honey-flow often stops before the bees have completed two or more crates of sections, in which case they are likely to unseal complete sections, and run with the honey below. We should thus get two crates of partly sealed comb instead of one complete one, besides odd sections of well-ripened honey. Feet-marks on face of sealed sections is a much-exaggerated objection, the route of ascending bees not being as a rule over the face of combs. There is also less disturbance of the bees by this method than there is in dividing the hive by the insertion of a crate of cold, empty sections.—R. A. H. Grimshaw.

The additional super should be placed underneath the partly filled one, for which there are certainly three good reasons, viz., that the instinct of the bees leads them to finish off the topmost combs first; it obviates the soiling of the honey-comb, which would occur if the bees had to travel over the finished combs to get to the upper ones, and it greatly facilitates the removal of the finished combs.—J. Garratt.

Put it over. I have tried the other way many times, and have frequently found the bees did not well fill the sections out, whereas the super being put on top, the bees have a chance to expand or contract, according to the weather. I think 'A Renfrewshire Bee-keeper's' ideas are as applicable now as when he gave his description of managing the Stewarton hive.—John Walton.

Under. Any work is more readily accepted below that in existence than above it. For clean sectional work, under-tiering (if I may so speak) should be practised, if for no other reason. Again, under-tiering gives room just when and where needed to a colony well furnished with hatching brood.—John H. Howard, *Holme, Peterborough.*

I think it best to put an additional super under the one already on, as I should expect to obtain a larger take of honey by that plan; but I seldom practise it, as I prefer leaving my crates of sections on until completed, and do not object to getting a swarm from most of my hives.—Fred. Thos. Scott, *Hartlip Vicarage.*

Under; for the reason that it leaves the partly filled one in a readier position for taking off when full, and that it would most likely come off a better colour than if a fresh one was put over it, as bees would be continually travelling over it to get to and from the latter.—A. Simpson.

I consider it best to place the second super under the first one up to a certain period of the honey-harvest, a point which each producer must settle himself, according

to the district in which his apiary is situated. Towards the close of honey-harvest, I always endeavonr to contract the surplus chamber according to the income of the colony. My reason for putting a second crate of sections under the first is that by so doing I create a vacuum, which impels the bees to great exertions to fill, thus increasing the surplus. Secondly, that by placing the second crate under the other, it is in the best position for removal so soon as finished. Thirdly, by keeping the finished sections at top they do not get discoloured by the trafficking of the bees over them (when sealed) into the crate of empties above.—W. Woodley.

In the early part of a good honey season I think it is best to put the additional super under the one already on, but should the season not look promising, I would put it over. This also applies to the latter part of July or beginning of August, when preparing for the heather. I would then give additional room on the top of the crate already on. In this way there is the chance of having one filled out crate of sections instead of several with only drawn out combs.—W. McNally.

I consider it the best plan to place the additional super under the one already on, my reasons being that the work in the second super is commenced much quicker, and the honey-comb in the super already on is not traversed so much by the bees, and it is thereby kept clean, and a better colour.—H. Wood, *Lichfield*.

I always put the second crate under the one already on, as in my opinion if it is placed over, the nearly finished sections become discoloured.—Hy. Beswick.

THE WEATHER, SWARMING, AND OTHER MATTERS.

By Allen Pringle, Canada.

The weather here is keeping up its recent character for fickleness. The spring opened fine and early, fully two weeks ahead of the usual time. As the bees came out in very good form, they of course soon got ahead of time too. Soon after Mayday drones were flying and some colonies preparing to swarm. These were checked, however, as I want no swarms till clover bloom. The fine, prematurely warm weather continued up to the 20th of May inst., bringing out a succession of bloom which fairly 'boomed' the bees. But this was too good to last, and a change came. It got cool and cloudy, and cooler and cloudier from day to day, till the culminating point was reached the other night in a stiff frost (28th May), which did considerable damage throughout the country to garden stuff, small fruits, &c. This, however, is being followed by copious rains, and on the whole, as May is going out, the outlook not only for the apiarist but the farmer is highly encouraging. No spring, in my recollection, were the bees so far advanced in building up on the first of May as they were this spring.

An unusual incident in the apiary this spring is worthy of note. In clearing out the hives after being set out one colony was heavily jarred, with the result of a 'balled' queen. She was reached too late, and died immediately after being released. The colony being now queenless but strong in bees, my intention was to unite to it the first weak colony I should come across. About two weeks passed before I got round to it with a colony to unite. Upon opening it for that purpose imagine my surprise on finding there a strange queen, with a lot of brood in all stages, with no sign of a queen-cell young or old. She had evidently entered the hive as a stranger, and, to render the matter still more mysterious, had a clipped wing—a queen apparently of the previous season. My impression at the time was that she had come out of some adjacent hive in the rush of the spring flight and missed her way back, going by mistake into the queenless colony, which accepted her. But this could not have been unless she was a duplicate in some colony, for there was not a queen missing in the yard.

Swarming.—The swarming is both a joy and a sorrow to the bee-keeper, and which it is mostly to be depends upon the apiarist himself and his system of management. Rightly managed, the perspiration, and tribulation, and botheration of swarming-time all vanish. I well remember how it was forty years ago in my father's bee-yard, when I was a lad, assisting to chase the absconding swarms over fences, and through fields and woods, making all the noise I could to drown the voice of the 'old king bee,' and make them 'light,' you know. There was not much joy or joke about this, in a bee-yard of fifty colonies, all in the 'old box-hive,' on a sultry day in June, with not a queen in the yard clipped. Why, on swarming days it took the whole family to dance to the swarming music, and some of them would get away withal. But times and methods have changed. I can now manage a hundred colonies in swarming-time without troubling the family much. And this brings us to the secret of it all, which is

Clipping the Queen.—Here is a point and a practice on which one might expect to find unanimity amongst the 'professionals,' but on the contrary we find the contrary. Our foremost bee-keepers both here and in the States are divided in regard to clipping the queen's wings. The majority, however, are for once on the right side, which, of course, is the clipping side. The non-clippers pretend to get on all right without much sweat in swarming time, and they have all sorts of devices in swarm-catchers, &c., to minimise the botheration; but just drop around to such ones at the right time of a hot day, and you will find matters not altogether lovely and serene. But they all have a right to their opinions, and are welcome to their extra trouble. As to managing swarms and swarming, nearly every bee-keeper has a way of his own, which, of course, is the right way and the best way. My way is as follows:—I keep all the queens clipped, never take but first swarms, and usually hive the new swarm on the old stand. The short and easy method of doing this, when the queen is clipped, is no doubt familiar to most readers, but may be reiterated. When the swarm is issuing and the queen has come out endeavouring to fly, I hold the open end of a little wire cage over her, when she immediately runs up into it and is shut in. Then, when the swarm is out, I remove the old hive to a new stand and place the hive for the new swarm in its place, putting the caged queen near the entrance. The bees will soon return to the old stand and enter the new hive. The queen may now be liberated, and will run in with the bees. Before carrying the old hive away to a new stand, I open it, lift out the frames one by one, and shake the bees off in front of the new hive, transferring supers or second story at the same time to the new hive, where we now have the whole working force of the old hive, leaving it so completely depopulated of old bees that (whether the cells have been all destroyed but one or hot) they will very seldom issue a second swarm. In cases where such is apprehended they may be gone over again in a few days and the cells destroyed. In a hurry, when pressure of work prevents opening the hive, shaking off the bees, and destroying the cells, I adopt what is called the 'Heddon plan' by placing the old colony near the new, but facing in an opposite or nearly opposite direction. Two days after, the old colony is turned around, so as to stand as regards entrances at right angles with the new. In a day or two after turn still further round towards

the new, and next day turn it right round alongside the old, close to it, and facing the same way. Then, in about a day or two thereafter (sixth or seventh day after the swarm) carry the old hive away to a new stand, towards the middle of day when the most bees are out. The object, as before, is to so depopulate the old colony as to incapacitate it for swarming a second time. This plan, while fairly successful, is not always so in preventing after-swarms, as it not infrequently happens that the young queen is hatched and off with her swarm before the seventh day. The other method also has the advantage over this of securing at once to the new colony the whole force of working bees, which means splendid work by the new swarm.

When further increase, even by prime swarms, is not desired, I practise various methods for the disposal of the swarm, according to the circumstances. When the queen is not up to the mark, I 'weed her out' and let the bees go back where they came from. When she is, I put her with all the bees in a new hive on the old stand, as already explained, and put the brood on top of some other colony as second story, or perhaps third story, with excluder-zinc honey-board between it and the lower brood chamber. As fast as the young bees hatch the combs will be filled with honey. At other times I distribute the brood to nuclei or elsewhere, as desirable. —*Selby, Ontario, May 31st*, 1889.

PARIS UNIVERSAL EXHIBITION.

Our Special Correspondent writes:—

'Italy is but poorly represented; only two exhibits over the well-known Italian queen-raiser, Lucio Paglia, of Castel St. Pietro d'Emilia, Bologna. His stand is composed of Italian oak, and is decorated very artistically with hand-paintings of various flowers, such as honeysuckle, acacia, &c. There is quite a large show of comb honey, principally in bars and sections, but it is all very badly finished, and with us would be quite unmarketable; it has evidently been worked without dividers, and is very badly bulged and uneven. The fine display of extracted honey in 2-lb. screw-top bottles is very good; each bottle is decorated with hand-painted coats of arms and flowers. Mr. Paglia also makes a speciality of honey in tins, and of this there is a large quantity, and it is put up in a style that reminds one of the foods of the American packing companies. There are six very large blocks of red Italian beeswax, and the lower part of the stand is filled with beeswax modelled into various fruits, such as apples, pears, oranges, lemons, &c., and the general effect of these is very good, as they are beautifully cast. On the wall above are diagrams of Mr. Paglia's bee-farm and queen-raising establishment; and the exhibit altogether reflects great credit upon him. Mr. Rovagnati, of Centemero-Brianza, has a small collection of honey and wax, and some beeswax candles for use in churches, &c.

'The chief French exhibitor is M. R. Gariel, of Paris, who has a stand with two bar-frame hives and a straw skep and super of English make (Abbott Bros.). These are so well known as to need no description. There is also a Little-Wonder extractor and a cylinder extractor: this last built on English lines, but clumsily copied. The wall above, to the height of about twelve feet, is covered with red cloth, and on this are shown a very great variety of apicultural implements, such as knives, smokers, feeders, gloves, veils, stock and super foundation, brushes, excluder zinc, tin boxes for sections, queen-cages, Woiblet embedders, syrup-cans, wax-extractors, &c., many of the goods being of English make. Grimshaw's Apifuge figures quite conspicuously. Of bee-hives, apart from the above-named exhibit, there is the poorest possible show, and reflects no credit whatever on French hive-makers. Eugene Grand, of 42 Rue de Cardinal Lemoine, Paris, has a clumsily built hive of about twenty frames at right angles to the entrance. The frames rest on the bottom corners, and are spaced by the usual wire eyes; the openings between the frames at top are filled up with little moveable slats of wood, and so dispense with the quilt. The only novelty about the hive is that there is a crate holding round sections; these are just like large pill boxes, without top or bottom. When filled with honey the lids are put on top and bottom, and thus a complete box is formed. One round straw skep and one square ditto, both with bars and supering arrangements, complete the show of hives on this side of the gallery.

'Of honey on this side M. Asset, of Sevres (Seine and Oise), has a nice little show in ½-lb. barrel-shaped pots. He has also some last-year's comb honey in bars, ½ lb. to 5 lbs. in weight. The honey, being old, is in poor condition, having sweated a good deal; but for flatness and finish I have rarely seen its equal. If M. Asset would only use sections he would, I am sure, turn out something surprising. There are three skeps of heather honey which are marked for making spiced bread (gingerbread), and for use in veterinary medicine. I think that in England not much honey is now used in cattle medicine, though formerly it figured largely.

'It is curious how the same idea crops up in various different places, for in the exhibit of M. Loraille, of La Ferriere-Bechet par Sees (Arne), we see the identical closed-top glass sections that were, I think, first introduced by Mr. R. R. Godfrey, and, later, by a gentleman at Haileybury College, who, I believe, provisionally patented them. A good number are here shown, but none are quite well finished; those with two combs in the section looking the best. This exhibitor has also some 1 and 2-lb. sections fairly well worked, but all bear marks that the season here was a bad one the same as with us.

'Mr. Victor Leydel, of Aix in Provence, has some fine large glass jars of both white and yellow Provence honey, and some fair wax in very large blocks.

'M. Lereux, of Marines, shows a good display of hydromel and eau de vie de miel. He is also an adept at wax-casting, for the model of the human hand and the coat of arms of the town of Marines are excellently done.

'Furniture paste made in all shades from white through yellow to brown and mahogany colour, put up in small tins, is a speciality of this exhibitor.

'Mr. Sevalle, of Clamart (Seine), evidently lives in a good district, for he has acacia honey in both bottle and comb of the most delicate colour.

'Mr. Priolet, of Guillons (Eure and Loire), has about 1 cwt. of really very fine red wax in blocks or bars ranging in weight from ½ lb. to 5 lbs.; also a small barrel of eau de vie de Marc de Miel. Whether this is much better for being kept in the wood I had no opportunity of judging, the owner being absent; but it had a very fine aroma through the peg-hole.

'Ernest Chant has a display of wax very similar to the last, and some of the best finished 1-lb. sections in the show; they are very lightly sealed and beautifully transparent.

'M. A. Fournier, who is Editor of *Le Conservateur des Abeilles*, shows his journal and a photograph of his apiary, which is situated at Angerville. He has also a variety of small instruments, and some good 1 and 2-lb. sections. I had the pleasure of meeting him, and having a chat about bee matters; but he has been very unwell of late, and unable to give as much attention as usual to bee-culture.

'The natural history of the honey-bee is well illustrated by M. Varquin. He shows the queen, worker, and drone, the egg, and the various stages to the perfect bee. Queen-cells, drone and worker comb, wax scales, wax propolis, honey-wax moth in all its stages, hornet, wasp, death's-head moth, &c.

'This side of the gallery cannot be left without mentioning the splendid scientific achievement of Mr. Emile Deyrolle, of 46 Rue du Bac, Paris. It is a bee in papier mâche, about four feet long, and every member of the body is moveable. The head and the thorax and the abdomen are modelled apart, and are shown above and open, so that every internal organ is perfectly distinct and open for inspection. It is undoubtedly the finest thing of the sort ever done, and is the *chef d'œuvre* of the whole department.

'Crossing the gallery we see one more bee-hive, not worthy of notice, and then the collection of bee-eating birds, animals, &c., shown by M. Tiaffay. These include the bee-eater, tit, swallow, sparrow, and two sorts of mice.

'M. Fraix, of Boulogne, shows a lot of comb honey in chip-wood sections, holding from ¼ to ½ lb. Each section slides into a case like a match-box cover, and this is decorated with paper illustrated with bee subjects. When finished and boxed they present the appearance of large match-boxes. It is quite a novel exhibit, and from the smallness of the size and portability of the package honey in this form should find a ready sale.

'A series of volumes of the well-known *L'Apiculteur*, edited by M. Hamet, are shown; and in the same case are numerous bottles containing samples of beeswax from every country almost. The remaining side of the gallery is occupied entirely with wax, which exhibit is the finest and largest I have ever seen, and is greatly to the credit of the French bee-keepers, for, however backward they may be in honey-producing, they are masters of the art of wax-making, &c. There will be altogether between half and one ton of this wax; it is shown by the firm of Wadeleux & Metray, and each separate parcel is marked with the place of production, such as Normandy, Brittany, Garonne, Gascony, Perigord, Landes, Beance, Bourbonais, Cantal, Sologne, Gatinois, &c. This exhibit should certainly not be missed by any British bee-keeper who visits the Exhibition, for we are notoriously backward in our handling of bees-wax.'

(*To be continued.*)

Very pleasant.—*Gentleman showing his bees—from a safe distance—to stranger.* Now, you see what a nice, easy occupation bee-keeping is. My gardener there quite enjoys it.

Stranger. Yes, it seems so nice, your man is actually dancing and shouting with pleasure as he attends to them.

Gent. Ah! he's just like a child—can't keep still when he is pleased.

Awful small boy (chuckles). It's 'cause he's got them up his legs, papa.—*Communicated by* Honeysuckle.

A Warning to Cottagers and Others.—Never leave a new swarm which is put in a straw hive exposed to the sun. A neighbour of mine had a swarm on the 1st of June; he kept it standing for the second day. The sun was very hot; the bees could not stand the heat, so out they came. About mid-day I placed another straw hive about twenty yards from the one from which they had come out. Since they were out in the open, I syringed the bees and brought them all down, and they went into the new straw hive. On these I placed a cover which shaded them. They are well settled now. Always cover down hives, don't let them be exposed to the sun.

Another neighbour of mine had four swarms come from various parts of the village, and took possession of some old straw skeps, whose occupants had died in the winter. Do your readers think that there are bees going about looking for such places? I believe they do; these four came all within two hours and settled themselves. —H. Seamark.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 2nd page of Advertisements).*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of May, 1889, amounted to 3420*l.*—John Courroux, *Statistical Office, H. M. Customs.*

HOW I BECAME A FIRST-CLASS EXPERT.

(*Continued from page* 264.)

[2108.] 2. My Novitiate.—Next spring I united the two lots, and later on made an artificial swarm. I also bought a swarm. I now added to my bee-books Cowan's *Guide Book*, which is an excellent little work for practical guidance. Reading therein of the excellencies of the Ligurian bees, I determined to try them, and obtained a queen from Mr. Simmins, which I introduced by his method. My hive I made myself, being a fair hand at carpentering. I had one or two sheets of foundation give way and get spoiled when suspended from the saw-curf, even when tightened with a nail, so I got some Cheshire rakes, which were very effectual, but they were too dear for use on a large scale, and the teeth broke off. Afterwards I invented a fixer, which is at once cheap, strong, and reliable,—of which more anon. I tried gloves of wool and others of leather, sometimes wet, sometimes dry, but generally got stung through them, or on the wrists when the coat-sleeve and gloves did not meet, for though tied they would part company. The stinging was, I think, chiefly due to the clumsiness which gloves cause. *When I discarded gloves*, which I did on the discovery of Apifuge *I got fewer stings*, and now I use no protection for the hands, and seldom get a sting. *In order to escape stings*, the bee-keeper must *have confidence* and *gentleness*.

The exhibition of British honey and appliances at the Colindries afforded much pleasure to my friend and myself. We heard Mr. Cowan's paper on 'Hives,' and spent much time in examining the exhibits. Here also we met Mr. Webster, and saw his fumigator, and since that time I have never used a smoker.

This year I got about forty pounds of honey, extracted with Meadows' slinger. There was much prejudice among the other bee-keepers against the new way. It was called my patent; my honey was sugar and water; if any robbing occurred, my bees did it; one man went so far as to say I was a fool, but not in my hearing. However, I made up my mind to take no notice of any such talk, and began a—

3. Crusade against the Brimstone.—I tried to convert some skeppists, and one man, a gardener, soon saw the advantages of the frame-hive, and at once adopted it. That autumn he and I went driving together, and have done so many times since. This operation I had never seen performed by a 'skilled hand,' and so it is not surprising if we sometimes had 'an adventure.' Here is one:—One evening we went to drive four stocks. It was dull, but not cold. We gave some smoke at the entrances, and removed one hive each to a distance. But no sooner did we invert the skeps and commence rapping, than we were mobbed—

our gloves were covered; some got inside our veils; some found out our wrists; there were—

'Bees to the right of us!
Bees to the left of us!
Bees all around us!
Bees by the hundred!
Theirs not to reason why,
Theirs but to sting and die!
Somehow we'd blundered!'

The immediate result was that—

They stung, and we ran,
And we ran, and they stung,
And they stung, and we ran away, man.

We managed to get behind a hedge, and clear ourselves, and then returned to the attack, during which I got 'one on the nose,' as I was blowing a spray of thin syrup over the combs. Luckily that organ did not swell. We secured most of the bees, and carried them home, and made up two stocks, which wintered well. We had our revenge on those bees next year. I got 87 lbs. from one stock; my friend got 90 lbs. from another, which had been just as spiteful.

During the winter I gave a lecture in the school on bee-keeping, with the aid of Mr. Cheshire's diagrams and some modern appliances. Among the audience were several bee-keepers of the old school.—ALADDIN.

(*To be continued.*)

FIRST SECTION.

[2109.] In reply to letter 2094, I was able to take off two sections on May 23rd, and up till present time have had thirty-two sections and forty-two pounds of slung honey. My hives are all Woodbury bar frames, and bees very strong. I usually prevent swarming, but had a large swarm on Sunday, 3rd, which is doing well. I think my sections will number amongst the first.—A. HAINES, *Prospect Apiary, Walton-on-Thames, June* 10.

[2110.] I see in the *B. B. J.* a mention of the 'First Section,' and thought possibly it might interest your readers to know that on Saturday last I took thirty-five sections (1 lb.) from one hive and could have taken twenty-one from another but for want of time. Eighteen out of the thirty-five sections were *perfect*, the others had a few cells unsealed: the average weight of sections was thirteen ounces. Both hives had thrown a large swarm, the one on the day and the other on Friday. I may say that I started last spring with two box-hives, and have now five frame-hives and one box-hive, and did not lose a stock last winter.

I attribute my good fortune entirely to a careful perusal of your most valuable book and a study of the *B. B. J.*—H. R. MARSHALL, *Barnham, Bognor.*

WASPS IN BAR-FRAME HIVE.

[2111.] Another week has again passed away, and there is still no perceptible alteration in the nest since my last notice. I looked patiently, however, into the interior, 'far as human eye could see,' and moving actively about were two worker wasps. They are the first I have detected, and these were not out two days before. They have not begun to fly yet; at least, I have not seen them, and I watched them closely yesterday.—C. C. MOORE, *Altrincham, June 17th.*

Echoes from the Hives.

Nyon, June 6th.—The honey harvest will be an average one. On some days the hives increased in weight 8 to 11 lbs. (in the twenty-four hours). From the 21st May up to Friday the average amount of honey stored is 55 lbs. But the pastures are being mowed, and there remain only the acacias.—E. BERTRAND.

Fairspeir, Ascott, Oxford, June 10th.—We have had capital weather here lately for bees until yesterday, which was wet and cold. My bees, in Blow's 12*s.* 6*d.* ten-framed hives, are working well in supers. I am not sure, though, whether ten frames are enough for one hive, because on looking into a stock (double supered) on Sunday, June 2nd, at 10 a.m., from which a swarm had just issued, I found every *cell* full of brood or eggs. Insufficiency of cell accommodation I consider caused the queen to swarm so soon, inasmuch as the queen-cells were not in a particularly advanced state. I made a three-frame nucleus from it, put in three frames of empty comb, cut out queen-cells, and returned swarm. I find it the best plan to use one size of frame throughout my small apiary. A neighbour whose bees I manage has four stocks in three different-sized hives; consequently, in April, when I wished to strengthen the weak colonies with brood from the strong, I found it very awkward. More than two-thirds of the bees round here are dead. A man living within a mile told me the other day that out of his fourteen stocks only one survived the winter. I made a rapid feeder in August, and gave my bees 20 lbs. of sugar each stock (they had no natural stores at all), and they came out in April strong, and have required no feeding at all this spring. One stock, however, was dead, although having quite 10 lbs. stores left. This was owing, I thought, to the queen—one they had raised—not being fertilised last summer, and consequently no young bees this. Lee's patent hanging sections are a capital invention, one being able to look at his sections and return them if unfinished to their place without smashing any bees.—APIARIST.

Chertsey, Surrey, June 13th.—It is now some time since I wrote an 'Echo' to the *Bee Journal*, a paper which I much prize, and look forward to it weekly as a treat. I may say that I am somewhat pleased with the result of my past labour, that of 1888. I took good care to follow the advice given in the *Bee Journal*, to feed sharp in the autumn of 1888. I put six stocks into winter quarters and brought out five good strong stocks for this spring's work; but this I attribute to the fact I fed well, for I found that I had used up for the six stocks 168 lbs. of sugar made up into syrup; and the one stock I lost was not from lack of food, but they dwindled down, and the cold was too much for them, as there was plenty of sealed food when I found they were all dead. Well, I had out on the 1st of June a splendid swarm from a double skep, which I kept for stock. I also had the second swarm out on the 6th of June, and both are working well in bar-frame hives; and on the 12th of June I examined one of my bar-frame hives on which I had put 30 one-pound sections, and was able to have from them some sections splendidly filled, and the greater part nearly full, so that with a few fine days I hope to take the remainder off and put fresh ones on. I think this is very good for our part of the country, for we have not over above much pasture for our pets, but I feel certain of far better results than the last two or three years have yielded.—ROBERT DRIVEN.

Clavby House, Market Rasen.—On the 13th I find my second empty hive is occupied; I do not know from whence they came, as they were not seen to swarm. I think it worthy of note that bees should select bar-framed hives on their own account. Very few stocks in this district have survived last year's disastrous summer; many, perhaps, have lost all.—MEMBER L.B.K.A.

Honey Cott, Leamington.—Truly the ways of bee-keepers if they are smooth are not all easy. The last week has been one of incessant swarming, although stocks have been supered, while others have been prepared for extracting. Sometimes within a few minutes of one another there would be five or six swarms out at one time, while some would persist in joining others, causing some fighting. As honey is not at present coming in

very rapidly, a great many of my swarms would persist in going up into plum-trees, where it was rather awkward to get them out. I found watering them out of a small watering-pot before shaking them into a skep helped to accelerate matters considerably, as it was not such a job to keep them in the hive while carrying them down a ladder. Within the last fortnight it has been quite a sight to watch the thermometer; some nights it was about 47°, and several times 50°, while in the daytime it went up by leaps and bounds to over 80° in the shade. If we get warmer nights as well as days we may, I hope, get a good drop of honey. If we could get the nights warm, so that we want scarcely any covering in bed, then is the time honey comes in freely. If honey had been coming in more plentiful, the bees would have had something else to do instead of thinking about swarming at 3 p.m. I had just had a visit from W. Carr, Esq., of Newton Heath, near Manchester, who I see still looks well and hearty. Perhaps some day he may tell the readers of the *Journal* something about my place. I also noticed at dinner-time that honey is coming in more rapidly now, and hope it will continue.—JOHN WALTON, *Honey Cott, Weston, Leamington.*

NOTICES TO CORRESPONDENTS & INQUIRERS.

MERCENARY.—1. *Appliance Business.*—There are so many in this business of known reputation that an outsider stands little chance. 2. *Bee-keeping as an Adjunct to Farming.*—It would be of great assistance to him. Frame-hives, if he wishes to make the best return. 3. *Cost of Beginning.*—This would entirely depend upon the description of appliances purchased. About 35*s.* per stock. The amount he would make would entirely depend upon his capabilities at the seasons.

BEE-KAY.—*Hiring Swarm.*—You have done quite right. You must not feed now if you have the supers on. The supers ought to have been put on directly the swarm was hived on the parent stand, weather permitting.

———.—1. *Superseding Queen.*—(1) Next season. (2) At any time during working season, of course, for preference, spring, but then queens are at their highest price. 2. *Preparing a Hive for Queen-rearing.*—You must remove all brood except that from which you wish to raise the queens. 3. *Carbolised Cloth.*—If saturated with the acid used in Webster's fumigator it will last for two or three weeks, according to how it is kept. We place it in a powder canister directly we have finished with it; it can then be taken out at any time without its having materially lost its power. 4. *Building up Nucleus Colony.*—If of three frames well crowded with bees it could be built up by the end of the season to a good colony.

MIDDLESEX.—1. *Spreading Brood.*—The advice only applied to spring time. You spread the brood when you place a frame of foundation in. A colony at this season in such warm weather as we are having will bear a lot of spreading, but in spring it is a great detriment. As all your combs are either filled with brood or honey you ought to increase the number by the addition of frames of foundation put between fully built-out combs. Do not remove any frames from a ten-frame hive, but place section rack on the whole. You need not put in the frame of sections, as the bees will store the most honey in the rack.—2. *Feeding.*—This ought now to be discontinued, as they have plenty of stores for all purposes.

RAW HAND.—1. *Superseding Old Combs.*—Insert frames of foundation, and gradually work the old combs to the back or sides of the hive, out of the reach of the queen, and when empty of brood remove and extract honey from them. You could also place a queen-excluding diaphragm between the frames containing foundation and the old combs, placing the queen and a good number of workers upon the foundation. 2 *Drone Trap.*—We should trap such an abnormal quantity of drones.

X. Y. Z.—*Feeding.*—The paragraph in question applies to swarms, or where the honey flow ceases between clover bloom and heather; it does not apply to your district. If your bees are strong on ten frames put on the supers at once. Dutch or white clover is just coming into bloom here in the south. Cheshire would be about seven days later.

BEE STINGS.—*Carbolised Cloth.*—You need have no fear of using this. There is much less danger of killing your bees with this than by the use of smoke. We have frequently seen a hive (skep) destroyed by smoking, but never have seen any ill effects arise from using the *vapour* from carbolic acid; it is much too evanescent to do any harm. See answer above, 'Carbolised Cloth.' Their tempers would have quite recovered before this; in fact, the bees in your hive now are not the same that were in the hive at the spring of the year.

CHARLES EYLES.—*Drones.*—They are Cyprians.

DEVON.—*Section.*—The section forwarded was much damaged in its transit from your part of the country. It had broken from its attachments from top and sides. It was a fair average section. A section should be well sealed over, perfectly even, without popholes. The weight of your section was fully sixteen ounces, and the honey was of good flavour and colour. We believe such sections would find a ready sale.

F. M. T.—*Mason Bees.*—The contents of the box forwarded were the dwellings of the Mason bee (*Megachile muraria*). The pellets of pollen contain the larvæ, the size of pellet corresponding to the wants of insect in its larval state.

THOS. F.—As you have not forwarded the cells for inspection, we cannot be quite certain of the builders thereof. Probably the cells are those of the Mason bee (*Megachile muraria*). The mother bee, after the selection of a situation for the future dwelling of her offspring, provides materials for the structure. The chief of these is sand, which she carefully selects grain by grain from such as contain some mixture of earth. These she cements together with a viscid saliva, and transports it to the site of her nest. The walls of a cell are raised to about an inch in length and half-an-inch broad, and in form resembles a thimble. In this cell she deposits an egg, and a supply of pollen and honey; she then covers it in, and proceeds to the erection of a second, and so finishes the whole number, which varies from four to eight.

T. D. SCHOFIELD.—*Honey.*—The honey sent is very good; we should think it had been gathered from white clover. Old honey is not infrequently watery on top, and it is quite in unison with a genuine article for it to be so. There is nothing to complain of in the sample sent; it is an excellent colour for whiteness and is rough-grained, which is not considered a detriment.

W. MITCHELL.—*Delay in executing Orders by Appliance Dealers.*—The remedy is in your hands. If you would only give your orders during the slack months, say, February or March, you would not only get your goods with promptness, but in most cases a discount also. Every one leaves the purchasing of their goods to the last moment; as a consequence the dealer is swamped with orders. We cannot see that you have any cause for complaint as to the delivery of a stock of bees in three days from despatch of cash. We call it very expeditious work on the part of the dealer. The non-delivery of queens is a matter often beyond the English dealer's power to prevent, as he often has

to wait three weeks or a month for the foreign queen-breeder to forward goods. Where a person can purchase wholesale, it matters not what, be it foundation or coals, he can always command a lower price than one who purchases half-pounds at a time. This is the law of trading everywhere over the globe. If you, in your order to the firm, agreed to pay *1l. 7s. 6d.* for a stock of bees and frame-hive, you ought to have received one; but if you only purchased a stock of bees—which we suppose you did—then can you in all conscience expect a dealer to send you a frame-hive as well?

J. KIDD.—The queen arrived in too dry a state for us to make any microscopical examination of her. If your new queen is young and prolific, there will be ample time for her before the heather honey-harvest to have a sufficiency of bees without adopting any special means of stimulation.

S. B. S.—We are pleased by your kind approval of our remarks on Mr. Abbott, and our description of his apiary. There are many reasons why some writers prefer anonymity, and it becomes us to respect their reasons.

M. CORKILL.—The bees are affected by the disease called Bacillus depilis: the Americans call it the 'nameless disease.' We do not note that they are smaller than the common black bees.

X. Y. Z., *Liscard, Cheshire.*—No; you would run the risk of inducing this variety to swarm.

G. E. C.—1. *Bees thrown out.*—These were doubtless killed in the fighting sure to ensue. They appear to be a mixed strain, certainly with Ligurian blood among them. 2. *Queens in Second Storey.*—Puff a *little* smoke in entrance; wait two or thee seconds—the queen will run up; then transpose the body boxes as you suggest, putting a sheet of excluder zinc between. As the top lot hatch out, the bees will fill up with honey. In the meantime you might put another box of frames on top; and we should be inclined to put another zinc on top of second body box in case the queen has not been carried down with present number two. See reply to 'Musjid.' You must have missed the queens.

R. PETHER.—1. *Queens.*—The queen left in the stock is the young queen, and therefore more valuable for future use than the queen which leads off the swarm. The queen which leads off the colt or cast is the young queen which headed the stock from the time the swarm left. Should the young queen left in the stock after both swarm and colt have come off get properly fertilised, she should be of about equal value to the one which led off the cast. 2. *Flowers.*—The flowers sent are good forage for bees. We know your district and anticipate your being able to get capital honey in your neighbourhood. As a boy we used to get excellent honey thereabouts.

MUSJID. — *Excessive Swarming.* — With the peculiar thundery weather we have experienced, we expect to hear of many persons in the same plight as yourself. We presume that, in the first instance, a sudden rise of temperature brought them out without any reduction in the number of sealed queen-cells, and as these hatched out in succession with the excitement still in force, several casts followed. The completion of the sections depends largely on good weather. Carefully nurse your new colonies if the honey-flow fails, and you will not regret the increase next year. Nature seems to be trying to make up for the extra losses.

QUESTIONS.

1. Will 'Woodleigh' be good enough to tell me whether when he packs sections in cube boxes, he puts small squares of wood at the ends of each dozen, and also between each section?

2. Can any reader tell me what is the best thing to send away honey in bulk in; whether in tins, and the cost of such, and where they can be procured?

[We have answered your other questions. Please forward name and address.—ED.]

SHOWS TO COME.

BEES, HIVES, HONEY, ETC.

June 24-29.—Royal Agricultural Show at Windsor. Entries closed May 1st. Secretary B.B.K.A., J. Huckle.

July 24th and 25th.—Lincolnshire Agricultural Society at Louth. Entries close July 9th. Secretary, Stephen Upton, St. Benedict's Square, Lincoln.

July 31st and August 1st.—Glamorganshire General Agricultural Society at Treorky, Rhondda Valley. Secretary, D. P. Davies, Commercial Street, Aberdare.

August 6th, 7th, and 8th.—Yorkshire Agricultural Society, at Hull. Entries close June 29th. Secretary, Marshall Stevenson, York.

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THE BRITISH BEE JOURNAL

will be Reduced to

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Established 1874.

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Will be held at HULL,
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The ENTRIES close on SATURDAY, June 29th.

Prize Lists and Forms of Entry for Stock, Implements, and Bee Appliances, will be forwarded on application to
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8/6 HIVE.—The body of this Hive is exactly square outside to allow of tiering any height; the walls are double on two sides. There are two Dummies that will not bend with the warmth of the Hive; 10 Frames with Saw-cut down the middle; fitted with Metal Ends. Two Quilts, Porch, Entrance Contractors, Legs, &c. A Step Roof, that will not crack with the sun's heat. Price complete fitted with Carr's, Godman's, or my own Ends, **8/6**; Crate (close-sided), of 21 1-lb. Sections, Separators, Glass, &c., **1/6** extra; Doubling Box, with Frames, **4/6** extra. Fitted with Foundation throughout, Frames and Sections, Excluder, &c., ready to receive a Swarm, **14/6**. If fitted with extra box to take Carr's Frames, 5½ deep, **3/-** extra.

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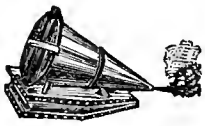

Clarke's Smokers, 2/6 each.
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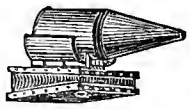

Perfection Feeders, 1/- each.
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Sections, 2/6 per 100.
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,, Frame Feeders, 3/6.
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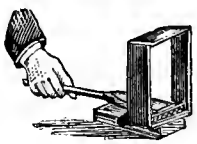
Carr's Metal Ends, best in the Market, 20 for 1/-.



Bingham Knives, 2/- each.
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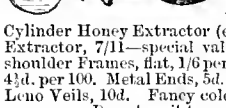
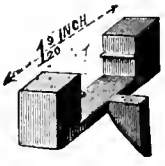
HEADQUARTERS for pure Foundation. The old-established house. Best Foundation of special analysed Wax, 1 lb., 1/11; 3 lbs., 5/3. Pure dark Foundation (recommended), 1 lb, 1/6; 3 lbs., 4/3. Finest Super (analysed), 1 lb., 2/5; 3 lbs., 6/9. Thin Foundation for wiring, 1 lb., 2/1. Wire, per roll, 6d. Woiblet Spur Wire Embedder, 1/-. Choice 1-lb. Sections, 4¼×4¼×2, 2/3 per 100; 9/- for 500. Stothard's Foundation Fixers and Gnide, 1/-. The celebrated No. 2 British Combination Hive, with double sides, legs, deep roof, 11 wide shoulder frames, crate 21 sections, dummy and quilts, price 10/-; cannot be excelled. No. 10 British Simplicity Hive, planed deep roof frames, &c., price 5/-. Fine Straw Skeps, flat top, cane worked, 16/- per doz. Straw Supers, six for 6/-. Strong stocks Bees with Carniolan queens, ready first week in June, in complete frame-hives with nine combs, 30/- each. Crates of 21 sections, 2/3; crates of 18 sections, 1/10. The British Cylinder Honey Extractor (every improvement) takes two frames; numerous testimonials received; 21/-. Little Wonder Extractor, 7/11—special value. Regulating Feeders, 1 to 9 holes, three for 3/-, best make. Phenol, 6d. per bottle. Wide-shoulder Frames, flat, 1/6 per doz. Best dovetail Standard Frames, 1/- per doz. Honey knives, 1/5. Very neat Labels, coloured, 4½d. per 100. Metal Ends, 5d. per doz. Parchment, ½ lb., 7d. Best Smokers and Guards, 2/6. Pine pattern Wire Veils, 1/9. Leno Veils, 10d. Fancy coloured Metal Section-cases, 2/- per doz.; 8/- for six doz. Postage on above articles extra.





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THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.'

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Editorial, Notices, &c.

EMINENT BEE-KEEPERS.

No. 6.—JOHN MARSHALL HOOKER.

John Marshall Hooker was born at Brenchley, in the county of Kent, on the 26th of April, 1829. He was the youngest son of Stephen Hooker, Esq., late of Broad Oak in that parish, who inherited, and died possessed of, considerable landed property in the counties of Kent and Sussex, which by his will he directed to be sold and divided among his wife and nine children then living. The family of Hookers, from which Mr. John M. Hooker is descended, held lands in Hampshire at a very early date. They took up their residence at Ightham, in Kent, about the year 1620. One branch of this family, John Hooker, was possessed of lands in West Peckham, in Kent, where he resided, and in the year 1712 he was High Sheriff for the county. John Hooker, his son, became possessed of the Broad Oak Estate at Brenchley in the county of Kent in the year 1689, the greater portion of the property having remained in the family until the death of Stephen Hooker, the father of the subject of the present sketch.

JOHN MARSHALL HOOKER.

At the age of seven years, John M. Hooker was sent to a school well known in Kent — 'Tudor Hall,' Hawkhurst, — and when he was twelve years old he was removed to Great Ealing School in Middlesex, at that time kept by Dr. Frank Nichols, where he remained till he was between seventeen and eighteen years old. On leaving school he was articled to Wm. Caveler, Esq., an architect well known in the profession by the works he published on Gothic Architecture. After this he was for a time in the office of George Smith, Esq., the architect and surveyor to the Mercers' Company. On leaving Mr. Smith he commenced on his own account, and has ever since carried on his profession of an architect. Mr. Hooker has built several churches, and restored others; he has built a number of parsonage-houses, schools, and mansions; has laid out the roads and partly covered several estates with houses of a superior class.

Having been brought up in one of the prettiest rural districts, Mr. Hooker at an early age took great interest and pleasure in all the resources of a country life, and occupied his spare time in shooting, hunting, bee-keeping, and farming. His father, who was a very clever and scientific man, was an advanced bee-keeper, and during the summer holidays his son assisted him in his apiary, and accompanied him in his drives over to the apiary of Mr. Golding of Hunton, in Kent, only a few miles distant; listened to the bee-talk, and witnessed the manipulation of the bees, which were kept in Huber and Grecian hives. Mr. Golding was the author of a book on bee-keeping, called *Golding's Shilling Bee-book*, and invented an improved form of Grecian hive, having moveable *bars*, so that with a little management the surplus could be taken. These hives, which were not large, are storified three and four high, and were used by Mr. Hooker, who obtained large quantities of honey of a superior quality in the upper hives. It is matter of surprise that some hive of this kind is not recommended for cottagers' use, as it could be cheaply made, and with its flat top is admirably adapted for obtaining sections, &c. Upon the introduction of frames, Mr. Hooker was amongst the earliest of those who adopted them, and his Grecian hives were given up.

At the beginning of the Volunteer movement Mr. Hooker took great interest in the same, and with his friend George Tomkin, Esq., of Yalding, raised a corps in four or five adjoining villages, of which he was appointed Captain, his friend being Lieutenant. He was a good rifle-shot, and having a range of 400 yards on his own property, he was, without trouble, able to practise when he felt inclined. He won several prizes, and, among others, the cup given by the men of the battalion for competition among their officers. On

getting married, some years after, he left Brenchley and gave up the command of the corps, the 42nd Kent.

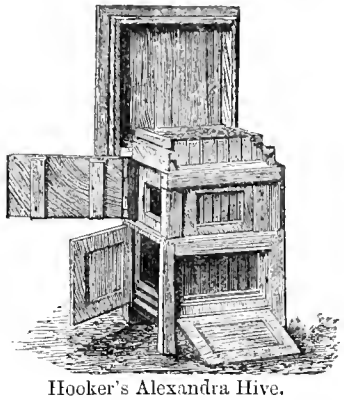
In 1874 Mr. Hooker became acquainted with Mr. C. N. Abbott and Mr. Frank Cheshire, and attended a meeting with those gentlemen (called by Mr. Abbott in the *Bee Journal*) at Camden Town, for the purpose of revising a schedule of prizes for the first Crystal Palace Exhibition, and to consider the best means of forming a National Association.

On this occasion the Hon. and Rev. H. Bligh took the chair, and on his being obliged to leave Mr. Hooker was called to the chair to finish the business, and was one of a committee chosen who afterwards carried out that memorable Show. At the general meeting of bee-keepers then present, Mr. Hooker was chosen as one of the members of the Committee of the British Bee-keepers' Association, which had then been formed.

From that time, 1874 up to 1889, Mr. Hooker has been one of the acting members of the Committee of the Association, being re-elected annually. This year, although asked by different members of the old committee, he declined to allow himself to be nominated for election.

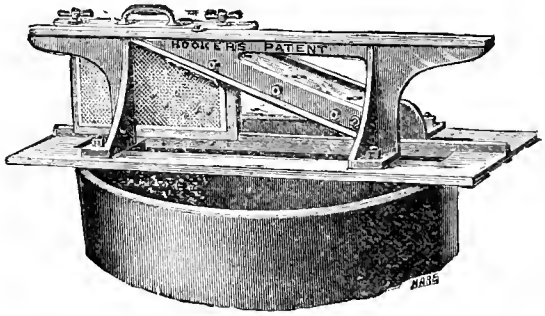
At the second Crystal Palace Show, 1875, in Class 2 for the best moveable comb-hive for depriving purposes, the second prize and bronze medal were awarded to Mr. Hooker. In speaking of this class the Editor of the *Bee Journal* (Mr. Abbott) says, 'We must, however, give credit where it is due. We may here remark that our first notion of a moveable dummy, *the greatest improvement until now* introduced into frame-hives, came from Mr. Hooker.' In Class 4 for the best hive on the collateral principle, the first prize and silver medal were awarded to Mr. Hooker.

At the third show of the Association held, at the Alexandra Palace, 1876, Mr. Hooker was awarded a bronze medal in Class 2, a bronze medal in Class 3 for the best hive on the storifying principle, and the silver medal for the best collateral hive. In the editorial giving an account of this show is the following remark, 'In all Mr. Hooker's hives the $\frac{5}{32}$ inch perforated zinc plays an important part, as by its use the entrance of the queen and drones to the honey-comb is prevented.' Since this time the use of excluder zinc has become very much used both in England and America; and Mr. Hooker exhibits a super at the present Royal Show at Windsor,



Hooker's Alexandra Hive.

weighing 75lbs. nett, which was filled by the 14th of June through the Raynor pattern of perforated zinc. Surely this is tolerably conclusive evidence that it does not *much* interfere with the bees working, there is no other super of nearly the same weight taken from one hive in the exhibition. At the show at South Kensington in 1878, a bronze medal was awarded Mr. Hooker in the class for the best moveable comb hive. At the great show at Kilburn in 1879, Mr. Hooker obtained a bronze medal for his Alexandra hive, and the same year at the exhibition at South Kensington, the silver medal for the same hive. In 1880 at the South Kensington show, Mr. Hooker obtained a bronze medal for his hive and another for his super. In 1883, the first prize was awarded him for the best moveable comb hive. In this year Mr. Hooker was one of the judges at the Royal Agricultural Society's exhibitions at Reading in 1882, York 1883,



Hooker's Uncapping Machine.

Shrewsbury 1884, Preston 1885, Norwich 1886, and Newcastle 1887, also at several of the Bath and West of England and Royal Counties shows. In the Bligh Competition of 1882-1883 he obtained the first prize for largest quantity of honey, &c., from one swarm. Mr. Hooker's uncapping machine is very ingenious; it will be found of great service in facilitating the work of preparing combs for the extractor. In 1888 he published a small book called Hooker's *Guide to Successful Bee-Keeping*. He has also obtained several prizes and medals for comb and extracted honey at various shows.

We hope at some future time to give an illustration of his apiary when residing at Seven Oaks.

THE ROYAL SHOW AT WINDSOR.

We have pleasure in informing our readers that, subject to the approval of Her Majesty the Queen, who is now at Balmoral, the programme of the proceedings on Thursday afternoon next, prepared by the authorities of the Royal Agricultural Society, includes a visit by the Queen to the exhibits of bees, honey, and appliances by the B. B. K. A. It is also expected that Her Most Gracious Majesty will be pleased to personally inspect the same. In view of this honour being paid to our industry, we believe it is the intention of our President, the Baroness Burdett-Coutts, to be present in order to give the Queen a personal welcome.

Much larger space has been accorded to us at the Royal Show this year than on any previous occasion, a spacious shed 125 feet long by 25 feet wide being placed at the disposal of the Society, and this is quite filled from end to end with the innumerable devices and appliances peculiar to our art. The *coup d'œil* of the Bee-keepers' Exhibition is particularly agreeable and imposing. The supports of the façade are hidden by choice pyramidal specimens of conifers, Japanese shrubs, and ivies, which have been planted in the green turf, and lend a refreshing effect of greenness and graceful form unobtainable without the aid of vegetation. This and the rest of the decorations are entirely due to the exertions of our indefatigable Secretary, Mr. J. Huckle. The whole of the monstrous ex-

panse of unsightly bare woodwork has been painted or stained white, relieved by crimson hanging stretched on the tops and fronts of the staging on which hives and appliances are ranged. The galleries or staging for the show of honey are painted an effective shade of light blue, which gives a most harmonious contrast to the varying tints of golden honey arranged, tier above tier, in clear glass bottles of extracted honey, or immaculate sections of white and primrose capping. An abundant display of flags and an artistic display of flowers (about which more will be said in our next article) complete the most tasteful arrangement of honey exhibits we have yet had the pleasure of chronicling.

The awards are as follows:—

Class 77. *Best collection of hives and appliances.*—1, J. H. Howard, Holme, near Peterborough; 2, W. P. Meadows, Syston, Leicester.

Class 78. *Best Observatory hive, foreign bees, and queen.*—1, G. Neighbour & Sons, Holborn, London; 2, H. Harvey, Hanwell.

Class 79. *Best and most complete frame hive, general use, unpainted.*—1, C. Redshaw, South Wigston, Leicester; 2, G. Neighbour & Sons; 3, G. Neighbour & Sons. Highly commended, J. H. Howard, Holme.

Class 80. *Best and most complete frame hive, general use, unpainted, not to cost more than* 15*s.*—1, G. Neighbour & Sons; 2, C. Redshaw; 3, G. Neighbour & Sons. Commended, S. J. Baldwin, Bromley, Kent.

Class 81. *Best and most complete frame hive, general use, unpainted, not to cost more than* 10*s.* 6*d.*—1, G. Neighbour & Sons; 2, C. Redshaw; 3, S. J. Baldwin. Commended, G. Neighbour & Sons.

Class 82. *Best honey extractor.*—1, W. P. Meadows; 2, withheld.

Class 83. *Best honey extractor, not to cost more than* 12*s.* 6*d.*—1, W. P. Meadows; 2, A. Godman, St. Albans.

Class 84. *Best pair section racks, not to cost more* 3*s.* 6*d. each.*—1, G. Neighbour & Sons; 2, T. B. Blow, Welwyn; 3, J. H. Howard.

Class 85. *Best slow stimulating feeder.*—1, J. H. Howard; 2, W. P. Meadows.

Class 86. *Best quick autumn feeder.*—1, J. H. Howard; 2, Edey & Sons, St. Neots. Highly commended, J. H. Howard.

Class 87. *Best smoker.*—1, G. Neighbour & Sons; 2, S. J. Baldwin.

Class 88. *Useful inventions introduced since* 1887.—Certificate, J. H. Howard.

Class 89. *Best* 12 *sections, gross weight near* 24 *lbs.*—2, Miss M. L. Gayton, Ware (one entry only).

Class 90. *Best* 12 *sections, gross weight near* 12 *lbs.*—1, W. Woodley, Newbury; 2, W. Debham, Chelmsford; 3, Sells & Son, Stamford. Highly commended, Rev. R. T. Shea, Rochford.

Class 91. *Best* 6 *sections, gross weight near* 6 *lbs.*—1, W. Woodley; 2, A. L. Cooper, Reading; 3, Sells & Son.

Class 92. *Best exhibit of run or extracted honey in jars, not to exceed* 2 *lbs. each, gross weight near* 24 *lbs.*—1, T. W. Norman, Ipswich; 2, Mrs. E. J. Cox, Abingdon; 3, Miss M. L. Gayton. Highly commended, J. Thorne, Baldock; R. W. Lloyd, Badminton.

Class 93. *Best exhibit of heather honey, gross weight near* 12 *lbs.*—1, J. D. McNally, Springburn, Glasgow.

Class 94. *Best exhibit of granulated honey in jars, not exceeding* 2 *lbs. each, gross weight near* 12 *lbs.*—1, G. Turner, Donegal, Ireland; J. J. Candy, Landport; 3, W. Sturdy, Stony Stratford.

Class 95. *Best exhibit of comb and extracted honey in any form.*—1, and silver medal, W. Woodley; 2, A. Godman; 3, J. Thorn.

Class 96. *Best plan and design for apiary of* 50 *hives in two or more acres of land.*—1, A. Godman; 2, J. Palmer, Ludlow; 3, W. Marshall, Buncefield.

Class 98. *Most interesting and instructive exhibit of any kind connected with bee-keeping.*—1, W. N. Griffin, Reading; 2, G. J. Buller, Welwyn; 3, G. E. Darvill, Reading.

QUEEN REARING.—MAKING BEES PAY.

While reading the *British Bee Journal*, I am impressed with the generosity of the people of that great empire. There you have so many exhibitions and shows, and send a missionary round to teach bee-keeping, just as we send around an agent from house to house to see and supply each family with the Bible. If bee-keeping was fostered that way in this country, honey would not sell for a penny a pound, but every family would be supplied with this delightful sweet, and the fond wish of Father Langstroth gratified. He often used to say to his wife that he should be paid for his life's work, if he did not make any money out of it, if he could induce poor people to cultivate bees, so that if they were not able to own a cow, and have butter, their children could have honey on their bread.

Queen Rearing.—Mr. Alley is giving us some very useful hints in rearing queens, but the way I do may meet the views of some small bee-keepers. I always consider the colonies that swarm first as the best, and endeavour to save as many queen-cells as possible. I take a frame of honey, and a frame from the colony that has swarmed, containing a mature queen-cell and adhering bees. These will remain, as they have no queen, and are expecting one from the cell. In a short time she will leave the cell, and become fertilised, and can remain there till wanted. One season a queen belonging to a large second swarm was lost on her bridal tour, and their mournful note was heard. When a queen reared in this way was given them, the sound immediately changed to one of rejoicing, for their nation was saved from extermination. Sometimes I remove a poor queen during the swarming season, and as soon as queen-cells are built, insert a mature cell between the combs. When it comes out, the bees appear to think that it came from their own cells, allow it the freedom of the hive, and permit it to destroy all queen-cells. By a system of weeding out and superseding all poor queens by those reared from their best, a person can, without any outlay, have all the bees in their apiary first class. It does not pay to keep poor stocks, for the best bees gather the most honey, and that shows that they have the longest tongues, strongest and best wings, and largest honey-sacs.

Make Bees Pay.—It has always been one of my rules that every colony should pay its rent. I furnish a nice house, clean, well painted, and ventilated, and I must have returns for my outlay, or the old lady must move. In order to do this they must be strong during a flow of honey. Last season I sold one morning my last bit of honey, and was entirely out for the first time in many years. It was during a short flow from basswood, and I went to the hives, removed the outside frames, and replaced them with empty ones. These I extracted, and before I had another customer had a supply. It is poor policy for a bee-keeper ever to be out of honey. Let the public feel that they can always get honey of you at a fair price, and you will have little trouble of disposing of your surplus. A pleased customer is the best advertisement.

When a colony swarms during a flow of honey, remove the old hive, and put another one in its place, and return the swarm, and remove the sections to it. The old colony that is removed should be turned to

front differently, and gradually turned around so as to face the same as the new one in eight or nine days. Before the young queens are mature, the old hive should be removed to a new stand, and this will prevent after-swarming, and mass all the field workers together upon the sections. Sometimes I remove the outside frames, if they are solid with honey, to the new colony, and fill the body of the hive with frames if I have them, or foundation. Some claim, and no doubt truly, that more surplus will be stored if only starters are used in the frames, as the bees, having no other place to deposit their honey, carry it up into the sections. During a flow of nectar, every facility should be given the bees to store honey in the best marketable shape.

Have no leaks about the apiary, such as combs being consumed with moths. Save all bits of combs, or scrapings, from frames or surplus, and melt them up for wax. I have filled an all-metal sieve with scrapings of propolis that looked as mere trash, destitute of wax, and placed it over a pan of water in the stone oven, and the result would be a nice light cake of wax. Occasionally a queen will lay in sections, and rear drones. If there is nice honey surrounding drone brood, extract it, feed the brood to the chickens, and melt up the comb. Where a person has no extractor, all odds and ends can be melted up in a pan over boiling water, being careful not to let it get too hot. When cool, remove the wax from the top. No unsightly bits of honey should be allowed to accumulate around the premises, but all put to some useful purpose.—Mrs. L. Harrison, 821 *Hurlburt Street, Peoria, Ills.*

PARIS EXHIBITION.

Our Paris correspondent writes:—

'*France continued.* In addition to the displays already described, there are some small exhibits in the separate shows of the various large agricultural societies, and in the shows of the different departments, but these exhibits are scattered about, and usually quite small. Vallon & Co., of Vals, near Le Puy, Haute Loire, show a good lot of beeswax and some inferior-looking honey. Vallon & Bertrand, of Le Puy, show a magnificently decorated bleached beeswax candle for church purposes. It is quite a gorgeous piece of work, and is about 10 ft. in height by 8 or 9 in. diameter at the base. The Comice Agricole of St. Menehould show a couple of bee-hives, and some wax and fine sainfoin honey. Under the display of the Comice Agricole of the Aube, Mr. Beze, of Vallenay, shows what is called an observatory hive. It is simply a two-storey box, with glass sides all round. There is a lot of work in it, and it has numerous accessories and devices for management, but we think it would have been much better if shown without living bees, as these bees had no means of flight, and have simply worried themselves to death at the glass. It is altogether a cruel display for a bee-keeper to see, and even the general public in passing constantly made remarks of pity to see the poor exhausted bees crawling about in a dying state. 280 francs is the modest sum asked for this hive. Under the same display Mr. Collin, of Vallant St. George's, shows some remarkably good sections (1-lb.), and there are photographic views of the large apiary of Mr. Dupont, the Professor of Agriculture of this Society.

'As far as I can learn, the only remaining exhibits relating to France are the living bees which are located in the gardens of the Trocadero, which is about a mile away. These will therefore be omitted for the present, but a detailed description will be given probably at the close of these articles.

'The United States have a very considerable exhibit, contributed by nearly all the leading makers in the States, and shown as a joint collection. It is arranged on a floor-space of about 30 ft. long by 4 ft. wide, and on the walls above are various small articles. Also the well-known diagrams by Mr. Cheshire of the British Bee-keepers' Association.

'Mr. A. I. Root, of Medina, Ohio, of course is to the fore. He shows his well-known lawn hive, his two-storey hive, and his storey-and-a-half hive. These are so well known as to need no further comment. There is also one of his latest natural-based foundation machines, and a large can for catching the wax-cappings when extracting is done on a large scale, as it is in the States. The can for cappings is a large cylinder like an extractor, and has bars across the top to draw the uncapping knife across, and the cappings fall down on to a gauze wire strainer, and are there retained, while the honey drains through into the lower part of the cylinder.

'Mr. Pelham shows one of his well-known Pelham foundation-mills, and on the bare board are arranged the rings of which the rollers are built up. At the same time we may remark as to the great depth of the side walls as shown in these rings, and presume that it is quite impracticable to produce on a commercial scale foundation with walls of such a depth. It would be a sheet of at least $\frac{3}{8}$ in. in thickness. The mill is dirty, and the rolls are quite stuck up with wax, as though an attempt had been made to roll a piece of wax-sheet through and failed.

'The Given press is a novelty in Europe, only one or two, we believe, having ever been imported. One is here shown, but we do not see any foundation exhibited that the press has produced, though this machine was of great promise, especially for wired foundation in the frames, yet it has apparently fallen dead, for we hear little of it now.

'Professor McLain, of Aurora, Ills., shows a model of his patent bee-house, which, as far as we can see, is not a very remarkable structure. It is just a long, narrow house, with a passage up the centre, and on either side of the passage run two long troughs, one just above the ground, and the other about 4 ft. from the ground. The hives are made out of these long troughs by means of dummies, so that any size hive can be easily made, from a two-frame nucleus to a twenty-frame stock. The alighting-boards, entrances, &c., are painted in different colours, to enable the bees to distinguish their respective entrances. What the patent parts are we fail to see, and we distinctly remember seeing, about ten years ago, a very similar structure at Ashwell, built by Mr. Thorne, the well-known raiser of comb honey.

'Dr. Tinker shows shipping crates for sections, splendidly made out of that beautiful white poplar that he uses for his sections. His 4-piece poplar sections are also shown, and they are marvels of workmanship, each one being absolutely perfect. We believe that Dr. Tinker only turns out a limited quantity of these goods, preferring to make a small quantity of a good article than to making a large output of inferior goods. Everything here bears the impress of his own personality.

'Mr. Muth, of Cincinnati, shows his wax-extractor, which is on the lines of the Gerster extractor. It admits steam all round the sides, also by a perforated tin tube in the centre, and would doubtless extract the wax very rapidly. Mr. Newman also shows his Excelsior wax extractor.

'The next article we come to is what we take to be an antiquity in the way of honey extractors. It is shown by Mr. Murphy, of Fulton, Ills. It is about as ancient a looking article as it is possible to imagine, and might be the first extractor ever made. It is constructed of a cylinder of copper (tinned inside), and is fitted into a massive walnut-wood case, with a huge brass tap at bottom. It has evidently had a modern gearing attached to the top, which somewhat detracts from its venerable appearance. As a relic it is

most interesting. A fine Stanley automatic honey extractor is shown alongside this last, and is a great contrast.

'Makerman & Crocker, of Lockport, N.Y., show their cramp for folding sections. The section is bent, and placed into a right-angled iron receptacle. One of the angles is moveable, and this, on being actuated by a cam movement, closes on to the dovetailed corners of the sections, and forces them together. It is quite a good thing, but we imagine that the simple folding block and hammer, which is in such general use in England, is equally good, and of course comparatively the cost is trifling.

'Quite a variety of queen-excluding slatted honey-boards are shown. These boards, which are scarcely known over here, seem to be in very general use in the States. Dr. Tinker shows some in which the perforated zinc has the greatest number of holes to a given space that we have ever seen. We should like to know where he gets it perforated, as it is quite the best yet produced. The other perforated queen-excluding zinc shown is evidently pierced either by A. I. Root or D. A. Jones, as we believe no others in America have machines which will do this work.

'Dadant & Son, of Hamilton, Ills., show their well-known make of their natural-based foundation, and in this case it is so thin and clear that their name, which is printed on paper, and placed behind the foundation, shows plainly, and can be read easily through it.

'Mr. James Heddon has his Heddon hive, which has been so well ventilated in both the American, Canadian, and English Bee Journals, thanks principally to Mr. D. A. Jones. It was going to sweep every other hive off the face of the earth, but, though warmly upheld by so eminent a man as Professor Cook, it has not as yet made any headway, especially over here.

'G. B. Lewis & Co., of Watertown, Wis., show their unequalled two and four-way one-piece sections, and for an article that is produced by the million, they cannot be surpassed. We are not surprised to learn that now they practically control the whole European trade in sections.

'W. T. Falconer, of Jamestown, N.Y., who we notice has converted his business into a company, has the biggest and best show in the collection. Everything is got up in splendid style, and is clear varnished. He shows the Falcon hive, which is on similar lines to Root's lawn hive. The Chantangua hive, named after a noted holiday resort near Jamestown, which is adapted for storifying, and can be used with either deep bars, shallow bars, or sections, is a capital hive. The hive shown has five storeys. Mr. Falconer also shows his well-known one-piece section, and some good and cheap crates for shipping comb-honey.

'In addition to this large exhibit on the floor-space, there are four large glass cases, but in only one do the exhibits much interest bee-keepers. This case contains a vast variety of small articles, of which the following is an abriged list:—Van Deusen hive-clamp, Gray's covered bee-feeder, Jones' bee-entrance guard, Parker fixer, various bee-escapes for getting bees out of sections, &c., Alley's drone-trap, in which the drones are led by a conical arrangement into a box, from which they cannot return, while the workers escape through perforated zinc; Mr. Root's well-known shipping cages for ½ lb. and 1 lb. of bees; a large display of queen cages, Peet's figuring prominently; smokers, honey-knives (apparently English make), Carlin cutters, gloves, veils, foundation (by Root, Vandervost, Dadant, &c.), and a collection of honey cakes and confectionery.

'The show of honey itself is not good. The season was bad last year in the States, as elsewhere, and Professor Riley, who is the courteous Chief Commissioner of the Apiculture Department, told me that some of the best comb honey had got broken in transit over here. There is not a really well finished section in the whole lot. J. Bull, of Seymour, Wis., has the best display in comb, and Mr. Knickerbocker, of Pine Plane, N.Y., of extracted, in square bottles. The remainder is hardly worth notice.

'The inscription on the top of the large stand is in letters constructed out of four-piece sections, and is very pretty, and in good taste. It reads thus: "*Les insects nuisibles et utiles*," and the remaining three glass cases are filled with the specimens of the useful and harmful insects of the United States.'

Selected Queries.

Are you an advocate for putting an empty frame or two near the centre of the brood-nest of a hive which is becoming too small for its population, or would you prefer to put them at the sides?

Unless the weather is very hot, and apparently settled, and the hive very full of bees, I prefer putting one extra frame in front of the others (most of my hives are on the 'Combination' principle), with a view to checking swarming; another next the last comb of brood, and this latter plan I adopt in a few hives I have with frames ranging from front to back.—W. E. Burkitt.

I would not disturb the brood-cluster by spreading the frames, but put additional frames at the sides until I got sufficient to carry a crate of sections, which I would put on when well covered by bees (looking through for queen-cells at the time).—R. A. H. Grimshaw.

I should place the empty frames in the centre of the brood-nest. In saying this I am assuming that the object of the bee-keeper is to keep up the colony to its fullest strength. If it should be that he wishes to secure the largest quantity of extracted honey, then I should say the empty frames might be placed at the sides, or rear, as the case might be.—J. Garratt.

When giving a stock more frames, I always fill them with foundation, and place them near the centre of the brood-nest alternately, where they are soon built out and occupied by the queen. I frequently place frames of brood at side or back, as the case may be. Empty frames I read in the *A.B.J.* many years ago were a good thing, but I found them to build almost entirely of drone comb. If there is a frame with too much honey at side or back, I move that nearer the middle, thereby causing the bees to move it up into the super when it is put on.—John Walton.

Never break up the centre of a brood-nest, except swarmed-off bees are being returned to it. To further the ordinary development of a colony, it is wrong to break up the seat of natural heat, which heat gives warranty to the mother bee that she may extend her work outward. Therefore, by all means add fresh combs or foundation at the sides, and see that these are next the last combs containing brood, and that no combs are left for brood-development which contain an undue proportion of honey.—John H. Howard, *The Model Apiary, Holme, Peterborough.*

When I wish to enlarge the brood-nest, my practice is to place a single frame with foundation in the centre; if a second, separated from first by one or two brood-combs. When long hives are used, I like to have some unfilled combs in front of brood-nest. This in order to prevent swarming.—Fred. Thos. Scott, *Hartlip Vicarage.*

In centre up to June 15th, if in a clover district, and stock is fairly strong, a month later if heather district; afterwards at the sides. If queen is a good layer, more eggs will be laid in comb placed in centre than at sides. —A. Simpson.

This will entirely depend on the season, the strength of the colony, and the object in view. For building up stocks in cold, ungenial weather, I should place extra frames at the side of brood-nest, first pouring a little syrup into the side I put next the bees; but if weather is warm and settled, I should, in case of a strong colony, place the frames in centre of brood-nest, not two empty combs both together in centre, or I should cut the nest in two, but place one, say, fourth, and the other seventh, guided of course by the position of brood-nest. Some colonies start on the ends of combs on one side of hive; these I equalise by simply turning round every other frame; that places brood opposite to bare parts of comb, or opposite sealed food, which I take the precaution to bruise or scarify; then, in a few days, extend size of nest as required.—W. Woodley.

By the above query I understand the empty frame to have a full sheet of comb-foundation. If so, when the hive is getting crowded for want of room, I give a frame with foundation in the middle of the brood-nest, one frame at a time, and a few days afterwards another, and so on, as room is wanted. I prefer a frame with foundation to a built-out comb for this purpose, because the queen can cover it with eggs before honey or pollen is stored in it. It is best, however, for beginners to be careful, and not separate the brood-nest too early in the season, or before the bees are crowded.—W. McNally.

I would place the frames at the sides of the brood-nest. I do not find any gain by putting them in the centre, rather the reverse in cool weather.—H. Wood, *Lichfield.*

I prefer putting an empty frame or two at the sides. I generally slide back one frame, put in the extra ones, then slide back the first one. By so doing, I think the queen deposits eggs in them sooner; the middle frames being full, she would be filling up the side frames.—Hy. Beswick.

BEE-KEEPERS' VOCABULARY;

Or, Glossary of Technical and Scientific Words used in Works upon Bee-keeping.

Contracting brood nest.—Reducing the size of brood-nest by the removal of frames and contracting the space by means of division-boards.

Contraction. *n.* (*L. contractio*, a drawing together.)—Reducing the brood-chamber during a honey flow in order to force the bees into surplus apartment.

Contractor. *n.* (fr. *L. contracto*, I draw together.)—Moveable board used for reducing the size of brood nest; division board; dummy.

Convex. *a.* (*L. convexus.*)—Rising or swelling on the exterior surface into a spherical or round form, as in the lenses of the eyes of bees.

Convolutcd. *a.* (fr. *L. convolvo*, I roll together.)—Rolled together or on itself, or one part on another, as in the lobes of the supra-œsophageal ganglion.

Cop. *n.* (*Sax.* the head or top of a thing.)—The round piece of wood fixed on the top of a bee-hive, or skep. (Arch.)

Coppet. *n.* (fr. *Sax. copp.*)—Straw hackle placed over hives.

Copulation. *n.* (*L. copulatio*, a coupling.)—See *Accouplement.*

Corbicula. *n.* (*L.* a little basket, dim. of *corbis.*)—The external hollow on the tibia, or shank of hind leg of worker-bee used for carrying the collected pollen; pollen basket.

Coriaceous. *a.* (*L.* fr. *corium*, leather.)—Resembling leather or parchment.

Cork dust.—A waste product of the manipulation of cork bark, sometimes used as a packing between the inner and outer walls of hives.

Corn syrup.—Starch converted into syrup by the action upon it of sulphuric acid, which is afterwards neutralised by the addition of chalk; starch syrup; glucose.

Cornea. *n.* (fr. *L. cornu*, a horn.)—The transparent membrane in the front part of the eye; the superficial lenses of the compound eye make up together the cornea.

Corneous. *a.* (*L. corneus.*)—Horny; like horn.

Corne honie.—Used by old writers to designate granulated honey.

Corners. *n. pl.* (*W. cornel*, fr. *corn*, a projection.)—Pieces of metal applied to the corners of frames, hives, or boxes; metal corners.

Corpuscle. *n.* (*L. corpusculum*, dim. of *corpus*, a body.)—A minute particle, or physical atom. The particles of blood are called *blood corpuscles.*

Corrid honey.—Hard granulated honey. (Arch.)

Bees Swarming at the Paris Exhibition.—Some excitement was on Tuesday last occasioned in the grounds of the Paris Exhibition by the issuing of a swarm of bees from one of the observatory hives exhibited by Mr. Blow, of Welwyn, Herts. The swarm settled on the top of one of the highest elm-trees, about sixty feet above the roadway. Several ladders were tied together and placed against the tree, but those who climbed into it were unable to reach the bees. Eventually the owner succeeded in approaching the fugitives, and successfully hived the swarm.

Singular Death from a Bee Sting.—On Monday afternoon an occurrence almost without precedent happened at Leigh, a village near Sherborne. A farmer named Charles Perris found that his bees were swarming and he proceeded to 'take' them. He, however, neglected the usual precaution of covering his face, and one of the bees entered his mouth. The insect settled in his throat and stung the unfortunate man so severely that he died from suffocation, caused by swelling, in a few minutes.

A Novel Garden Party—Bee-hive Examination at Tredelerch.—On Wednesday evening (19th June) a new departure, and one that cannot fail to lead to the best results, was made in connexion with the Glamorganshire Bee-keepers' Association, the available local members of which paid a visit to Tredelerch, Rumney, to assist at the examination of the bee-hives of Mr. Lascelles Carr, Editor *Western Mail*, Cardiff. The following invitation was also issued to a large number of the inhabitants, cottagers principally, of Rumney, who were interested in bee-keeping:—

Bee-hive Examination at Rumney, near Cardiff.—You are invited to meet the members of the Glamorganshire Bee-keepers' Association, and witness an examination by Mr. Gay, the society's bee-master, of Mr. Lascelles Carr's bee-hives, at Tredelerch, near Cardiff, on Wednesday, 19th June, 1889.

Attendance 4 to 6.30 p.m.

Tredelerch, near Cardiff, 14th June, 1889.

In response to the invitation a large company gathered on the grounds at Tredelerch on Wednesday, amongst those present being Mr. and Mrs. Lascelles Carr, the Rev. Usk Jones (Llandough), Mr. Pettigrew, Mr. Gay, Mr. Blakemore, Mr. Williams (Blackweir), Mr. Comley, Mr. Valette, Mr. D. P. Davies, Aberdare (Secretary of the Glamorganshire Association), and a large number of the ladies and gentlemen, with cottagers and their wives of Rumney. Mr. Gay opened some of Mr. Carr's hives, and took out a number of excellent sections of honey, at the same time explaining in a clear and interesting manner the principles of the modern scientific system of

bee-keeping, showing in what respects it was more economical and humane than the old system of 'skeps,' in which every autumn the bees are suffocated for the purpose of depriving them of their stores of honey. The sections taken were beautifully sealed over, and one of the hives examined was particularly good. Very great interest was shown in Mr. Gay's examination by all present, and in only one instance was there a sting to mar the pleasure. Many of those present took the precaution to wear the veils with which they were provided by Mr. Gay. Some, however, believed Mr. Gay when he said that bees 'would not sting if fear was not shown.' All came off scot-free with the exception of one gentleman, Mr. Heywood's gardener, to whom fell the distinction of being the only person stung. At the conclusion of the examination Mrs. Carr dispensed tea in the grounds, after which a hearty vote of thanks to Mr. Carr was proposed by Mr. W. Williams, the holder of the British Bee-keepers' Association's silver medal. In the course of his remarks Mr. Williams expressed the hope that more gentlemen connected with the Association would follow Mr. Carr's example. He heartily congratulated the Society on the movement initiated that day, and intimated that they would be happy if other bee-keepers would do similarly, and invite their village neighbours to be present. By this means a love of bee-keeping would be spread.—Mr. Blakemore seconded the vote, which was carried unanimously.—Mr. Lascelles Carr having been called into Cardiff, Mr. W. Emsley Carr responded appropriately on his behalf.—Mr. C. F. Gooch, chairman of the committee of the Association, was prevented by business engagements from being present.—*Western Mail.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

HOW I BECAME A FIRST-CLASS EXPERT.

(*Continued from page* 274.)

[2112.] 4. Amateur Expert.—We were now beginning to make progress—slowly, but surely—notwithstanding numerous blunders, which, after all, were only what might have been expected from those who had never seen any practical work skilfully performed. As opportunity occurred, the advantages of the frame-hive were brought under the notice of several skeppists in a quiet, pleasant, suggestive way. The quantity of honey, its quality, the command over the bees and their work, all make impressions in favour of the more humane system. I kept my hives during the next summer in a small fruit plantation adjoining the school, and one in a recess in a yard, about 8 ft. by 12 ft., which was frequented by the scholars; but few got stung. This hive yielded 87 lbs. It was very much shaded, faced south-west, and the sun's rays fell on it for less than three hours a-day. It was a Cowan hive, with four boxes, but no excluder was used. At the end of the season I found no brood in lowest boxes, only pollen, the brood being chiefly in the middle boxes. The Ligurians were supered with sections, but did very little; they had wintered badly. I bought a swarm in June, and hived it on empty combs, and in ten days had honey enough to pay for it, but I should not follow that plan with a swarm now. One morning a lot of bees, which had swarmed and flown from somewhere, began to settle on a roof of a lean-to building. This was about 7.30 a.m. Being asked to hive them, I got a ladder and a skep, but before I could do anything, they had nearly all entered some cracks in the wall of the adjoining house. Having obtained permission, I that evening proceeded to get them out. The paper of the room was on canvas, and between this and the outer wall I found them clustered. Holding a skep under the cluster, I brushed them in, and secured nearly all. This lot were soon afterwards disturbed by a bullock, who shifted the hive, but no damage was done, though it made them savage for some days after.

5. How I gained the Third-class Certificate.—I had determined to become a certificated expert, and as there was to be a show in our county, I applied for permission to be examined. The day was fine, but windy, and after a long journey I reached the show-yard about midday. I took my fumigator, and some apifuge, as I found no veil was allowed. Of the scope of the examination, I knew only what the syllabus stated. I did not know how long was allowed for the practical work, nor had I practised driving in a given time. I felt safe so far as theoretical knowledge was concerned. If I could gain this certificate, I believed I could gain the higher ones. At any rate, I determined to do my best, though I knew that if my methods were faulty, a loss of marks would result. There were two candidates, and I began first. Ten minutes were allowed for 'driving.' I soon 'spotted' and captured the queen, but did not complete the driving in the time. I had to be careful not to injure queen or break combs. While the other candidate drove, I was examined orally, and gained full marks for this part of the test. Now I had to take the frames from a hive and find the queen—five minutes allowed. The candidate also has to show how to invert a frame. I failed to see her majesty, and as time was flying, the other candidate began the search. During his manipulation I spotted the queen before he did, but of course could only glance at the examiner, if perchance I should catch his eye. Well, I got through; the ready answers in the oral test (only short ones are required) atoned for my shortcoming in the manipulation.

6. How I gained the Second-class.—The examination for this was in November of the same year, and I read up Cheshire's *Bees and Bee-keeping*, Cowan's *Guide-book*, and the *Bee Journal*. The other books recommended in the syllabus I did not see. The knowledge thus gained, together with the practical experience I possessed, carried me through. On the day of the examination I had been in London all day at science classes and other business. I think the examination began at 7 p.m., and lasted three hours. I had several miles to walk in the dark to the residence of the county Secretary, who very kindly undertook the conduct of examination. I had fifteen questions to answer in the time, and did them all. The result I heard in the January following.

7. How I gained First-class.—As soon as I knew the result of the previous examination, I determined to enter for first-class in May. The syllabus afforded little information about the lecture which candidates have to deliver, so I wrote a string of queries, and sent to Mr. Huckle. The sum-total of the information was this: the fee was five shillings. On the day appointed I went to King William Street, and again had fifteen questions to answer in three hours. I think I completed nine in the time. Then followed the 'lecture.' It was to be such as would be given in the bee-tent at a show. This did not last very long, and was followed by some oral questions as to what should be done in certain emergencies, and I well remember the late Rev.

G. Raynor gave me several excellent practical hints. In July I received the coveted parchment, which now hangs in a frame.—ALADDIN.

OBSERVATORY HIVES.

[2113.] One of the greatest attractions at our bee and honey shows is the display of observatory hives. With what eagerness the public press forward to get a glimpse of the queen and all the inner workings of the colony Of late years the ingenuity of the bee-keeper has been taxed to devise hives of the above design, but it is only too apparent that, however perfect these may be for observation purposes, they are sadly deficient as a suitable home for the bee. I do not make these remarks for the purpose of fault-finding, but solely for the purpose of trying to remedy this evil in the construction of observatory hives in the future. Now-a-days, when so many of our scientific bee-masters keep an observatory hive in close proximity, so that they may at any time study the mysteries of bee life, it is all the more necessary that the bees should be able to live and thrive in these hives at all seasons. How many hives of this description are to be seen in which the bees could live for a single season; aye, or even for a month? I venture to assert there is not one in ten. The single comb observatory, so well known at our shows, is, no doubt, a most useful little article for the lecturer, or for pleasing the public, and with it there is little loss, since it contains only a single comb of bees and queen. It is also most useful for showing queen-raising in nuclei. It is the large unicomb hives of six frames or so, containing a fair stock of bees, that is the most unnatural. I know from experience that when one of these large unicomb hives has been exhibited for a week at a show, that the bees in it are about past being of any further service, and generally the safest plan is to destroy them at once. Without going into detail how an observatory hive should be made, or of what material, I here offer a few suggestions which I think should be considered in the making of these hives, and which is within the range of possibility, viz.:—(1) An observatory hive should contain a full stock of bees when exhibited; (2) all combs visible on both sides, and the queen easily seen; (3) when not in use as an observatory can be supered, or allowed to swarm; (4) the temperature of hive should at all times be able to be noted; (5) that the bees are able to winter in it; (6) each comb when exhibited should be shown between two sheets of glass, to prevent the queen from getting balled or hidden from view; (7) the hive should be very compact, so that it can be transported to and from shows. If those who are appointed as judges at our shows would give these suggestions some consideration, no doubt good will result to the bees as well as to the bee-keeper.—W. MCNALLY.

SHALLOW FRAMES—EXCLUDER HONEY BOARD.

[2114.] Having heard and read so much about 'shallow' frames last winter I determined to try them. So I ordered twenty-six from a manufacturer, and had excluders to fit, and I meant to put one or two on a hive and test them, and I soon found that two were not enough, and at present I have seven or eight stocks up in five and six bodies each, and last evening I extracted from six bodies over 140 lbs. of sainfoin honey of fine quality: this says more for excluder than words. Sections are being worked well, four or five hives having on eighty-four and sixty-three, nearly all completed. Now I may explain my plan: I left them severely alone, with plenty of food, till warm weather, and when strong put on excluder and shallow body, which, without exception, was *entered at once.* This was left till nearly drawn out, then lifted, and another, and so on until six bodies were full, and I was afraid they would swarm, so I put a frame of brood and fourteen frames with quarter-inch starters at the back end of the hive, then the excluder, and then all the shallow bodies on the top, shaking bees and queen in front, and so I have a fine lot on the old stand, and a strong lot to stand away in another place. This stock has had two bodies taken off ten days ago, and last night three bodies. This is what a man gets by buying a good article and using his brains; and here, Mr 'Jersey Bee-keeper,' why do you, who candidly admit that nothing can be bought as good as Howard's comb-filler to fill combs with, question the price? I daresay Mr. Howard spent a lot of time and trouble before he got the right thing, and if 4*s.* 6*d.* buy a feeder which will feed 100 or 150 stocks in one visit to each, is it dear? I think it is a cheap feeder.—SUNNYSIDE.

WASP'S NEST IN FRAME HIVE.

[2115.] There is a slight change in the wasp's nest this week, both in shape and size. It resembles somewhat a boy's peg-top without the peg, but does not taper off quite so suddenly. The entrance is exactly where the peg in a peg-top would be put, and I notice that it is smaller than I have perceived it to be before. I conclude from this that the queen will have ceased to leave the nest, for I do not think she could possibly get through. The only wasps visible are workers which are becoming active, making the process of measurement more difficult.

The exact measures are, length, $2\frac{1}{4}$ in.; width, $2\frac{1}{2}$ in.; size of entrance, $\frac{5}{24}$ of an inch.

Another layer or dome is just being started from the top.—C. C. MOORE, *Altrincham, June 24th.*

Echoes from the Hives.

Wolverhampton, June 15.—Clover just in bloom, honey coming in freely. Aroma very perceptible where farmers are at work. One stock has eleven combs half full of honey, other half brood, and queen is laying freely in a nadir eleven-comb hive; bees also filling a shallow frame hive of ten combs.—C. N. C.

Hundon, Clare, Suffolk, June 22.—What grand weather we are now enjoying! and I think the bees are sharing our enjoyment. My first swarm issued on Sunday, June 2nd, at 8 a.m., and I have had my hands full ever since, hiving, supering, cutting out queen-cells, &c.; but in spite of all this, swarm they will. I have only lost one this season, and they struck off direct to the church tower, where they are now, I being too much of a coward to venture up forty feet to evict them. I took my first complete sections June 8th, and this Saturday evening I have taken a dozen—I think the best I ever saw.—CHAS. WHITING, *Valley Apiary.*

NOTICES TO CORRESPONDENTS & INQUIRERS.

H. Y.—*Queen Identification.*—We should give it as our opinion that it was a queen. The swarms might unite and one queen return to hive, but it is very improbable indeed.

J. SWALES.—*Queen's Sting.*—The sting of a queen is scimitar-shape and barbed, but not to so great an extent as a worker's. A worker has from eight to ten barbs, a queen three, and these but rudimentary as compared to a worker's. If it was the queen—we rather doubt it—you have been exceptionally favoured, as the number of bee-keepers who have been stung by queens could be counted on the fingers. We should most decidedly say that a queen simply falling upon one's hand would never sting.

A Subscriber.—*Queen-rearing.*—Your plan, with slight alteration, will answer very well. Instead of turning side entrance to front, only partially turn it; as if you wholly turn it most of the bees will only use the side entrance; the front of hive will thus become depopulated to so great an extent that the brood, and perhaps queen-cells, in same will become chilled. See that your division-board fits accurately.

M. H. Pritchard.—*Price of Honey.*—1*s.* for 1-lb. sections and 10*d.* per lb. for extracted honey is about the price at the present time. As the season till now has been exceptionally good prices may be lower. Do not be in too great a hurry to sell.

W. W. Ley.—1. *Extracting.*—The honey may be extracted from those frames containing no brood. It will not be taken up into the sections if it is capped over; it ought not to be extracted unless it is. 2. *Dead Queen.*—The dead queen was, no doubt, a virgin which had been killed by queen accompanying the swarm. Returning swarm to hive is at the best a very unsatisfactory proceeding, as they are almost sure to swarm again.

Samuel Jordan.—*Supposed Queenless Stock.*—The hive, no doubt, had swarmed eight or ten days before. It is a very difficult thing, even for an expert, to find a virgin queen in a very full colony; such a queen moves with great rapidity, and will dodge from side to side of the comb, away from the light—we have a theory that is the odour of the examiner—as the comb is reversed. Queens seem to have a much stronger aversion to the odour—or what—of the human body. Place your finger near one, and she instantly quickens her motions very materially, be she a virgin or a mother, but more so in the case of a virgin. Your treatment was quite correct, and, as you lived some distance away, the only thing you could do.

Beeswing.—The cells are those of the Mason bee (*Megachile muraria*). We are obliged by the care you have taken in dislodging them. They are worth preservation.

A Reader.—The rain has penetrated into your hive, and, as a consequence, the combs are mildewed.

G. Barthorp.—*Drones.*—You had better remove the drone-comb from the brood-nest and insert either ready built worker-comb or *full* sheets of worker-foundation. Otherwise your queen will go on raising a large number of drones. You could try a drone-trap, which could be obtained from the appliance-dealers. Is it not horse-bean pollen your bees are busy bringing in? *a*

Jasmine.—*Books on Bees.*—The bibliography of bees is a large subject; we believe that more books have been written, and more publications issued, on the management of bees than on any other natural history subject. It is impossible to say how many books, from Aristotle to Cowan, have been published on bees, but the matter has been treated very largely in previous volumes.

J. O. C.—There are no indications of foul brood in the piece of comb forwarded. There has been a great mortality of bees in the early part of the season, and we regret that you should have been to so great an extent a sufferer.

J. Atkinson and Another.—*Law on Bees.*—A swarm of bees is the property of the original owner as long as he keeps it in sight, if he lose sight of it it becomes the property of the first person who secures it. You cannot swear to the identification of bees. To take a swarm out of another's garden, you require his permission of entrance.

W. H. Jones.—*Webster's Agent.*—The sponge in Webster's Fumigator is moistened with a mixture of carbolic acid and creosote, a piece of ammonia being placed in the recess of the zinc cap. We would recommend you to procure the 'agent' from Mr. W. B. Webster, Binfield, Berks. The cost of a bottle is only sixpence; it would serve you a long time, and you would have it of the requisite proportions.

A. J. Hutchinson.—*Dead Drone.*—Verdict, 'Found dead.'

X. Y. Z.—*Honey.*—Can your bees possibly have got at any wort or any brewing refuse? The colour certainly is very unpleasant, but the honey is edible. Your neighbourhood should give good honey. We hope your further gatherings will be clear, bright, and sweet. Sorry for the little *contretemps.*

C. N. Parkin.—*Dead Queen.*—This insect having been placed in a box that has apparently been used for emery powder, it is quite impossible to tell her original colour. We should surmise that it was a case of supersession. Under the circumstances you did right. The hatching queen should be all right. If anything happens to one you can easily re-unite.

Ignoramus.—1. *Commencing Bee-keeping.*—Undoubtedly a good May or June swarm is best for a beginner. Irrespective of price it is then they can do best for themselves. 2. *Carbolised Cloth.*—We allow this to remain on a few seconds for the bees to gorge. Nothing would be gained by leaving it on any length of time, as you suggest; rather the reverse.

T. Harrison.—*Supering.*—If your bees are fairly strong put sections on at once. Outward and visible signs are to be learnt by experience rather than by books.

J. E. Adams.—*Stock at a Standstill.*—You do not say in what condition you found the combs as to honey, pollen, and brood. We think your very long experience will bear us out in saying that this last twelve month is the worst on record. Could you requeen?

James Houston.—*Keeping Carniolans pure.*—In a district where black bees are flying freely we know of no infallible rule whereby you can get over the difficulty. That bee-keeper who can devise some certain means will deserve a statue.

W. D. Marlow.—*Drone breeding.*—We recommended Mr. Hotham to raise drones from a properly fertilised queen, because a queen that has become fertilised is, as a rule, quite perfect all round, and we consider it best to raise drones from the best queens only. We do not consider it worth while to argue the question whether drones from unfertilised queens can perform the marital function until we are able to so control that function that we can of a certainty know which drone has been accepted by the queen. Your other question will be dealt with later on. *a*

*** *Will our subscribers and friends be kind enough to bear in mind that our Publisher, Mr. J. Huckle, is prepared to forward to them hand-bills and specimen copies of the* Journal? *We are very desirous that the reduction of price of the* Journal *should be a success; and to ensure this, the aid of all bee-keepers is confidently invoked.*

The Reduction of Price will commence from next issue.

SHOWS TO COME.

Bees, Hives, Honey, etc.

July 24th and 25th.—Lincolnshire Agricultural Society at Louth. Entries close July 9th. Secretary, Stephen Upton, St. Benedict's Square, Lincoln.

July 31st and August 1st.—Glamorganshire General Agricultural Society at Treorky, Rhondda Valley. Secretary, D. P. Davies, Commercial Street, Aberdare.

August 6th, 7th, and 8th.—Yorkshire Agricultural Society, at Hull. Entries close June 20th. Secretary, Marshall Stevenson, York.

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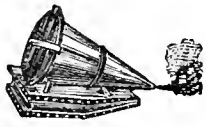

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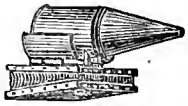

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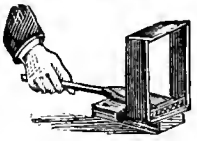

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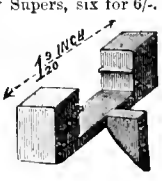

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THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.'

[No. 367. VOL. XVII.] JULY 4, 1889. [PUBLISHED WEEKLY.]

Editorial, Notices, &c.

THE BRITISH BEE JOURNAL.

We trust we may be excused by our readers and subscribers if we look with some degree of complacency on the present number of the *Journal*. The path of the journalist is ofttimes hard, thorny, and toilsome, and few will grudge to him the compensating joys which occasionally fall to his share. From the commencement of our career we have cherished the hope that one day—however remote that day might prove to be—we should be enabled to issue the *Journal* once a-week at the price of one penny. By slow degrees, but with steadfast perseverance, our hope has at length been realised, and our desire attained. Many have been the hill-tops which have intercepted our view of this last—the culminating point. To attain these heights, to conquer them in succession, we have panted, and struggled, and toiled, but one by one they have yielded to our exertions; and now, from our present height, we are enabled to cast a retrospective glance on our path of progress.

Sixteen years ago, we, with much diffidence, issued our first number. We felt that we had a mission, and that mission was 'to aid those enlightened members of the community who *cultivate* bees, and to induce others to engage in the charming pursuit, feeling assured that there is no other source of profit and amusement which affords such pleasant occupation, or yields so large a return for capital invested when rightly understood and practised.' We have tenaciously adhered to our programme, and we leave it to our readers to say with what result.

In a recent number we have specified the successive changes which have occurred to the *Journal* in its mode of publication and in price.

Having at length succeeded in our desire to reduce the price of the *Journal* to one penny, we trust, to a greater degree in the future than we have ever done in the past, that our circulation may be much increased, and that we may be the happy means of inducing many to cultivate the study of bees, their wonderful structure and habits, and the interesting relations they sustain to vegetable life. We feel assured that even if no profits accrue (which is not probable) the knowledge gained and the pleasure received from the study of the Honey Bee will bring them ample recompense.

We shall always be pleased to receive any suggestions or assistance from our subscribers, and it will be at all times our desire so to improve the *Journal* in appearance and in information that it may be abreast with the requirements of the day.

We again solicit the co-operation of our readers in our endeavours to extend the circulation and usefulness of the *Journal*, and we shall be glad to supply specimen copies and leaflets for distribution.

ROYAL SHOW AT WINDSOR.—VISIT OF THE QUEEN.

At an early hour on Friday morning, June 28th, it was evident that something out of the ordinary routine was about to transpire. In the bee-tent all was activity, and the officials in charge were busy making preparations. The exhibits were being arranged, and Mr. Huckle was all energy and action. The floral decorations, which were becoming a little faded, were being rearranged by Mrs. Bligh, who kindly undertook this part of the programme, and accomplished her task to the satisfaction of all in a way only possible for a lady, and the various flowers visited by bees arranged amongst the other exhibits formed one of the most attractive features of the show. The Chairman (Mr. T. W. Cowan), who had been present during all the week, the Vice-Chairman (Hon. and Rev. H. Bligh), and the Rev. R. Errington, were also early in attendance and active. It was not definitely known until the day before that Her Majesty the Queen intended honouring the bee-department with a personal visit, hence these preparations. It had been arranged that on Her Majesty's arrival at the department, the Baroness Burdett-Coutts was to present her with a bouquet of flowers visited by bees. This the Chairman and the Rev. J. L. Seager arranged with Messrs. Sutton and Sons that they should prepare from bee flowers growing on their farms at Reading. The bouquet, which arrived at 11.30, was artistically arranged, and fitted in a handsome gilt

holder, and tied round with white satin ribbon with flowing ends. In the holder was an inscription stating that it was presented to Her Majesty by the British Bee-keepers' Association. About twelve o'clock the Baroness drove up, and was received by the Chairman and Committee, and the bouquet, which was greatly admired by all present, was handed to her. After viewing the parade of cattle from the Grand Stand, the Queen proceeded on her round of inspection, the crowds of people cheering vociferously. From the bee-department the noise was heard in the distance, and the advance of the Queen's carriage could be marked by the gradual swell of the applause.

Soon after 12 o'clock there was a rush of policemen, who cleared the shed and formed a line to allow the procession to pass. It was a pretty sight, as those who were to take part in the reception of the Royal guests looked up the avenue and saw the Royal procession advancing at a foot pace. Mr. Jacob Wilson, the Honorary Director of the Show, headed the procession on horseback, and was followed by the outriders and equerries in waiting. Then came Her Majesty's carriage, drawn by four horses. In the carriage the Queen was accompanied by the Prince of Wales and the Prince and Princess Henry of Battenberg. The Baroness, Mr. Cowan, Mr. Bligh, and Mr. Errington, were ready waiting to receive Her Majesty; and as the carriage stopped in the centre of the stand the Baroness handed the bouquet of flowers to the Queen, and explained that they were specially selected as representing flowers visited by bees. The Baroness then presented Mr. Cowan to the Queen as Chairman of the British Bee-keepers' Association. Her Majesty received him graciously, and he briefly explained the objects of the Association, and drew Her Majesty's attention to some of the principal exhibits in the show. She showed great interest in the honey, and at this moment Mr. Bligh handed to Mr. Cowan a specimen of comb honey. This was a beautiful specimen of sainfoin honey, from the exhibit of Mr. W. Woodley, and the device worked by the bees consisted of the following letters:—

R. A. S. E.
JUBILEE,
89,

enclosed in a frame and covered with glass. Mr. Cowan held it up, and explained that it had been worked by bees in the county of Berks, and asked if Her Majesty would graciously accept it from the British Bee-keepers' Association. The Queen bowed most graciously and replied, 'With great pleasure;' and as she thought they could hardly find room in the carriage for so bulky a present, the Prince of Wales suggested it should be sent to the Castle. Much interest was also shown in the method of folding a 1-lb. section. The Queen then shook hands with the Baroness and Mr. Cowan, thanked them, and drove off.

In the other carriages were Prince and Princess Christian and Prince Albert of Schleswig-Holstein, and suite.

The weather was all that could be wished, and it is some years since a show of the Royal has passed off without umbrellas being called into constant requisition; but during this show they have only been required to keep off the sun's rays.

An amusing incident happened just before the Royal procession passed. The refreshment contractors had placed their cooking furnaces quite close to the skeps that were kept for driving the bees and other operations in the bee-tent. These furnaces were used at night for cooking the joints for the day's provisions. The heat made the bees rather uncomfortable, and a swarm issued and passed over the route to be taken by the Queen. Thousands of bees were flying to and fro, and Mr. Baldwin got a skep and induced the bees to settle by sprinkling them on the canvas of the bee-tent. It was not a moment too soon, for no sooner had the bees settled quietly when the Queen drove up. All the arrangements were perfect. The device, accompanied by several one and two-pound sections of comb honey of first-rate quality, selected from the exhibits of Mr. Woodley of Newbury, and Miss Gayton of Much Hadham, were in due course conveyed to the Castle, to be placed on Her Majesty's table. Mr. Huckle has since received the following communication:—

'WINDSOR CASTLE,' *June 29th*, 1889.

'SIR,—

'I am commanded by the Queen to request that you will convey to the Committee of the British Bee-keepers' Association Her Majesty's thanks for the honey and honey device which they have been kind enough to present the Queen.

'Yours, faithfully,
'HENRY PONSONBY.'

The bee department of the Royal has been honoured twice previously by Royalty. At the Kilburn show in 1879 the Prince of Wales visited it, at Norwich in 1886 it was visited by the Prince and Princess of Wales, whom Mr. Cowan, with other members of the Committee, had the honour to conduct round the department.

The visit of Her Majesty and the Royal Family will cause the Royal Show at Windsor to be long held in remembrance by all bee-keepers. The status of bee-keepers has been raised by the honour conferred upon them. It has shown that bee-culture is an integral part of Agriculture, and that the connexion between Agriculture, Horticulture, and Apiculture, is very intimate. The Royal notice, the magnificent weather we are enjoying, and the hopeful honey season, will impart heart of grace to all bee-keepers, and cause them to go on their way rejoicing.

USEFUL HINTS.

WEATHER.—Since the deluging downpours of the 6th and 7th, which will be long remembered in the districts affected, and three or four unsettled days which followed, no rain has fallen, with the result that the same glorious weather that is rejoicing the hearts of the busy haymakers is fast drying up everything, so that unless we soon have some rain, there will be very little more honey secreted. Just here we would again impress on our readers that the Almanac can never be relied on as a guide to dictate when the feeding-bottle shall or shall not be in use. Close observation must be our reliance in this. The very *raison-d'être* of the frame-hives is the facility of examination; and although the observant bee-keeper will eventually learn to a great extent the outward signs which betoken the condition of the stock, no delay should arise in obtaining a correct knowledge of the progress, or otherwise, of our bees. Where white clover is grown largely, we expect to hear of some heavy takes of honey, and as the limes are now in full bloom, these should, if at all numerous, considerably increase the crop *if* the rain comes. We notice the hedgerows particularly gay with foxgloves, meadow-sweet, and the various wild flowers of the season, but we scarcely heard a bee while taking a long country walk the other day through a district where foul brood has been rampant, but where empty hives are the rule. If we could see these hives burnt, we should feel more satisfied as to the future prosperity of bee-keeping in that district; as it is they stand as a death-trap to the few surviving stocks.

SUPERS.—Care should be taken to remove all sections as soon as well capped, so as to preserve their delicate whiteness. If the bees are allowed to run over them much after completion, they will certainly be tarnished. Moreover, there is the risk of having them emptied, if the honey flow suddenly ceases. Fresh sections should be given a little before they are actually wanted, so as to diminish the risk of a swarm rising. We presume all our readers levelled their hives in the early spring.

Attention to this point is one of the elements of success in producing sections fit to take the first prize.

Swarms.—This present season will, in some districts, hold the record for the percentage of swarms which have risen. The various bursts of great heat brought off many, but the last few days of bright sunshine from sunrise to sunset have made the bees restless and induced the swarming fever; this is more especially the case where no steps have been taken to shade hives standing in the full glare of the sun. Should it ever be our good fortune to discover a vagrant lot of the hive bee, which had become fully established in a new and natural home, we should certainly find them in some well-sheltered retreat; hid away from the bright midday sun, and also well protected from the wintry blast. Their new home may be in a church tower, a gable roof, a tree, or a rocky bank, still they will be spared the annoyance of the extremes of our climate. How delicious the honey from such a store! We recollect some years ago seeing every receptacle that could be found being well filled with the most delicious *liquid* honey, which had been taken from under the roof of a castle where the bees had been safe for about twenty years. There must have been many hundredweights of it. The whole country side was feasted with honey, for it was freely given to all who liked to fetch it. And yet, forsooth, we are troubled with last season's honey candying in our hives. Is it not for want of more equable temperature than obtains in a more natural habitat? All swarms which may rise from this date forward should, if possible, be provided with ready-built out combs, as it will be an immense assistance to them. If these can be given, and the lime-trees give their usual copious supply of nectar the progress of the swarm should be rapid, and with due care even late swarms can be put into winter quarters in capital condition.

Re-Queening.—This subject should engage the immediate attention of all. No stock that a queen of doubtful excellence or capacity should be allowed to go into winter quarters without the queen being superseded. Such change can be made at any time from now up to the middle of September, but there are advantages in doing it early; one is, that if you raise your own queens, and from any cause the first batch fail, you have still a chance of getting a queen in before winter. While, on the other hand, if you buy them you have the time to prove her early enough to clear up any doubt as to her fitness to carry on the colony. Many of the queens hatched late last season could not get fertilised, and although we have no such excellent queen-rearing weather later on, it may just be the opposite. Therefore let us 'make *queens* while the sun shines.'

Foundation.—Those who give full sheets of this to their swarms should ascertain whether the recent hot weather has caused it to drop. It seems so nicely fixed when we first put it in, but it is wonderful how it can slip when the bees cluster on it on a hot day. Early attention saves much trouble later on.

Extracting.—This should be in full swing shortly. It is a messy job, but cleanliness *must* reign supreme. However clean our various paraphernalia may have been put away, they must be all scoured clean immediately before use. We would caution the novice to be careful not to turn his extractor too fast, and where it is found necessary to extract from combs built this season it is best to take about half only from the one side, then reverse the comb; the second side may be quite emptied, hen the first side can be finished. By doing it this way it strains the comb less at the expense of a little more bother. Do not hurry the extracted honey into the bottles; let it stand in a tin vessel whose height is several times its own diameter, so that the air-bubbles may rise and leave the honey clear, which should be drawn off at the bottom. Should there be no time to spare, stand the filled bottles (they must not be corked) in fairly warm water for a short time, which will help the air-bubbles out.

Hives.—This bright weather will be found to have severely tried any hives constructed of badly-seasoned wood, and it will be necessary to look around, note defects, and take *immediate* steps to remedy them, otherwise a wet spell may work irreparable injury. Roofs are especially susceptible.

Increase.—Those who desire a further increase of their stocks should lose no time in making artificial swarms. There is plenty of time to build them up into respectable colonies before going into winter quarters, provided they are well attended to in the matter of food, should there be any failure of the honey supply. But the novice must clearly understand that he cannot largely increase his stock and also obtain a very heavy honey crop.

Doubling.—Where there are many lime-trees, it will be found a good plan to adopt this mode of obtaining a good harvest, but as possibly many could not carry out this system, some three weeks since, so as to be in readiness for the honey-flow, we would recommend tiering, *i.e.*, placing a second storey on top of brood-nest, and if possible fill it with newly-built out combs; or, failing these, any from the previous season which have not been used for brood. As a rule the bees will take to them at once.

THE ROYAL SHOW AT WINDSOR.

Bee-keepers who have this year visited the annual show of the Royal Agricultural Society of England in its year of Jubilee, have had a treat of a high order. About ten miles of shed over some 130 acres of a specially suitable part of Windsor Great Park, gave ample room for man and beast to move about in comfort. From leaving London to leaving the show all was comfort and pleasantness, but when it came to covering the mile and a half of dusty road between the show and the railway station all was changed. A continuous stream of vehicles, of carriages and wagonettes, moved all day long in one direction, round a sort of circle, three miles in circumferenee, depositing their loads up to two or three o'clock, and filling themselves chock and block with visitors returning from the show. Those who were fortunate enough to get to the railway station by conveyance, encountered the greater difficulty of obtaining comfortable carriage-room in which to complete their journey. The Railway Companies did all that platforms built for country towns would allow them to, and on the whole acquitted themselves marvellously.

'When Greek met Greek, then came the tug of war,' but when bee-keeper met those whose friendly faces had been pictured but in the mind's eye since the last Royal, then came the tug of kindly greeting, in many cases accompanied by some enthusiastic argument as to the varied points of perfection (or otherwise, alas!) of this or that exhibit, this or that method of procedure, amid the changes and chances of modern apiculture. Amongst the many, to us, unknown apiarists of the old benighted schools of arrant skeppists and self-opinionated bee-keepers who persist in walking in the lines their fathers trod, no doubt were many who, so to speak, 'came to scoff and remained to pray' for the multitudes of appliances on exhibition, the exceedingly fine show of immaculately pure honey in sections and bottles, and the practical illustrated teaching by Mr. S. J. Baldwin in the bee-tent of 'how to do rightly,' must have convinced many who still remain obdurate, or obstinate, that there is but one way for bee-keepers to pursue—the humane method taught by the B.B.K.A. and its affiliated offshoots in the counties, the modern scientific way of management in the frame-hive. It might be better in future years if the Committee of the B.B.K.A. would instruct their expert-in-chief to devote more of the time

in his lectures to exemplifying the correct management of bees in frame-hives. We feel sure the public would be no less interested by the exhibition of frames filled with foundation, drawn out, filled with brood and honey, covered by bees. The various kinds of cell, and other mysteries of the hive, might be thus easily demonstrated.

The Baroness Burdett-Coutts was of course on the show ground, and amongst the 'old familiar faces' flitting from hive to hive were those of our Chairman, Mr. T. W. Cowan, who came especially from Lausanne (Switzerland) in order that he might be of service to the cause, Rev. J. L. Seager, Hon. and Rev. H. Bligh, S. J. Baldwin, G. J. Buller, J. M. Hooker, H. Jonas, Stephen Abbott, W. Woodley, Messrs. Neighbour, J. Garratt, G. Henderson, J. H. Howard, W. P. Meadows, A. Godman, Redshaw, Edey, W. Dixon, A. C. Jameson, W. Daniel, A. L. Cooper, W. Carr, and (those who should have been named first) the judges, Messrs. W. Broughton-Carr, H. Yates, Captain Bush, and W. Martin. And here it may not be out of place to pay a small tribute of respect to the memory of those who in all human probability would have been prominent marks amongst us at this annual gathering had not death been very active amongst the higher ranks of our officials during the past year, which was in a double sense a peculiarly disastrous one for bee-keepers; we allude to the deaths of the Rev. G. Raynor, F. G. Jenyns, and Mr. W. Raitt. Others there were whose faces would have made the gathering more complete. Upon the whole the show of apparatus pertaining to bee-keeping was highly satisfactory, especially in the honey classes, the fine spring and summer having enabled us to produce a strong contrast to the honey show at Nottingham last year.

We have much pleasure in chronicling the entry of Mr. H. Yates and Captain Bush into the ranks of first-class judges. Their ability, straightforwardness, and perfect impartiality, are well known, and we have every confidence in saying that their awards will be characterised by strict justice. On this occasion, for example, the most captious critic must give them every praise for the rapidity and fairness with which they have exercised their powers.

In the class for the best collection of hives and appliances, Mr. J. H. Howard's collection comes deservedly an easy first, a noticeable feature in which is an improved doorway; a square-sided piece of wood the length of the hive-front revolves on two pins passing through the sides of a moveable porch, pieces of varying length cut out of the piece enable one to adjust the doorway for winter and spring use, and also for cases of robbing, whilst the hanging of the porch itself on two screws higher up on the hive sides permits the entrance of bees the full width of the hive. The second prize to Mr. W. P. Meadows also contains a hive having a new kind of opening—a strip of perforated zinc is cut into varying pieces from a two-bee way to one of moderate width, a long wire across the entrance serves as a hinge for these portions, which can be raised as occasion requires up to a full width doorway. It has the advantage of, at all times, giving adequate ventilation through the perforations. A new swarm-box, a new pattern observatory hive, and a self-opening slow-feeder, also characterise the exhibit. G. Neighbour & Sons' collection is very effective, as is that of Edey and Son, St. Neots, in which we noticed a super of eight two-pound glass boxes placed on end radiating from the central opening, on the top of this super rests a bell glass.

In observatory hives stocked with foreign bees Messrs. Neighbour come to the front, with one containing six well-covered frames, as usual the observed of all observers. Mr. Godman's second prize brings a single comb observation hive, and here we should acknowledge the wisdom of the B.B.K.A. Committee in excluding from the collections of appliances hives containing living bees. These invariably collect so many curious and only casual observers, that the way is blocked for those who desire to pass forward in examining the rest of the exhibits.

For the best and most complete frame-hive for general use there were eight entries, and Mr. Charles Redshaw, of South Wigston, Leicester, again takes the first prize with a 30*s.* hive, which is remarkable for good finish and general sightliness (the majority of modern hives, by the way, seem to be degeneratiing into very ugly objects). He gives us two body-boxes, three shallow frame supers, and a very fine adjustable door moveable on hinges. This is the second year Mr. Redshaw has taken premier honours in this class. Messrs. Neighbour & Sons take second prize with a hive of the Cowan pattern, and we are pleased to note it as having what we consider indispensable, *i.e.*, an extensive alighting board. This firm also take third prize with a hive lined with straw, giving the usual brood chamber, a super of shallow frames, and a crate of sections in Lee's hanging frames. The Paragon hive (the main principle of which is the placing of surplus chamber below) was exhibited by Mr. J. H. Howard, Holme, and received H.C., a hive with untried points being thus somewhat handicapped.

W. Dixon, Leeds, exhibited a patent hive in the same class, built at the request of the Yorkshire B.K.A., combining the advantages of wood and straw. An ordinary hive has an inner wall of india matting, on the top edge of which is a zinc runner for frames, straw is packed behind the matting, and this is kept sweet and dry by perforated zinc ventilators. An objection to this hive is said to be the difficulty of disinfection in case of foul brood, but this may be easily obviated by using cork shavings or chaff behind the india-matting.

(*To be continued.*)

PARIS UNIVERSAL EXHIBITION.

Our Paris correspondent writes:—

'The only remaining exhibits to be described are the one in the British section and the living bees. As I stated before the only British exhibitor is Mr. Thomas B. Blow, of Welwyn, Herts. The exhibit is both large and artistic in design, and as we believe it is the first occasion that Mr. Blow has ever made a display of honey (having previously shown appliances only) we congratulate him on his achievement. The stand occupies a floor space of 80 feet with a wall space at back of about 100 feet. The exhibit is built in an octagonal form, commencing with a counter space about two feet in width all round, on this are arranged two trophies of comb-honey in metal and card cases, nicely got up with lace paper round the edges, and a large number of various implements relating to bee-keeping, such as comb-foundation machines, smokers, feeders, sections, queen-cages, dividers, Parker fixers, &c., every article being labelled with neat black and gold labels in both French and English. At the back of the counter, rising to a height of about eighteen inches, are plate-glass fronted cases lined with crimson plush, in which are shown honey-knives, comb-foundation, &c., two of these cases being filled with medals. The octagon then rises by small steps to a height of about twelve feet, each row of shelves being filled with bottles of honey of an immense variety of sizes and shapes; one row being devoted to small trophies of cakes of bees-wax and bottles of hydromel (mead). Most of this mead is of Mr. Blow's own make, but for the oldest (ten years) he is indebted to the kindness of Mr. Rusbridge, who is famed for his production of this article. We came by just as the judges had left, and had the pleasure of tasting this old mead—one bottle only—and it was unequalled. As the

honey shown is of many tints, and the wax too, and the whole affair being backed up by mirrors, the effect when seen from the entrance of the gallery is very pleasing. An immense straw skep crowns the whole. Ranged around the base are various bar-frame hives and honey-extractors. These hives are all finished in French grey enamel paint with plinths of chocolate ditto. This, of course, is essential, for the frequent handling of the hives would soon render them dirty and unattractive in appearance. The whole stand is finished in black and gold, and there are posts and chocolate-gold cords surrounding the whole. The walls are covered with coloured diagrams of bee-life, &c., and on each side are observation hives on brackets.

'The living bees belonging to the same exhibitor are situated on the opposite side of the gallery, and are Carniolans. They are in the well-known pitch-pine observatory hive that has figured at so many of our English shows.

'Outside the adjoining gallery the Bee-keepers' Association of the Grand Duchy of Luxemburg have a pretty bee-house containing ten hives. At present they are not furnished with bees; and as the house has always been fastened up when I have been passing, I have been unable to get any information about it. It is surrounded with a neat wire fence with a little garden plot in front.

'From here to the Trocadero, where the remainder of the living bees are placed, is a good half-hour's walk, and that portion through the Trocadero grounds to the bees is through charming gardens.

'I have waited till the judges have been round, as time after time when I had called here there were no bees, though I believe there were many entries—the French in this particular line (that is exhibiting) being great at making promises.

'The Bee Pavilion or Chalet is one of the prettiest structures I have ever seen, and must have cost some thousands of francs. It is quite a large structure, and is made of small trees or branches of hazel, birch, and other wood sawn down the middle, and then nailed all over the frame-work of the house, which gives it a pretty rustic appearance. The roof is covered with a kind of thatch, and at one end is a high turret which is reached by an outside staircase. It is built by Albert Pruniere, 116 Rue St. Dominique. We think that after all this outlay on the part of the authorities, it is bad grace of French bee-keepers to contribute a total of two stocks only of bees to fill their structure. We imagine there must have been many promises, for we know that originally the English bees were to have been placed here, but at the last moment the French authorities raised objections, and they were placed in the English section instead. Now that there is this failure they are trying to induce Mr. Blow to bring them back, and so make a better show.

'One stock shown by Mr. Monvault, of Conflans, St. Honorine (Seine-et-Oise) is in a skep constructed of moss and straw, it being claimed that this combination is better than straw alone. The skep is bound with wire, which we imagine is not any great advantage. The bees here, of course, cannot be seen at work, and the French apparently have no good notions in the way of observation hives.

'The other stock is in four shallow square boxes piled on each other like Stewartons, and as there are little shutters with glass under, it is possible to see something of the bees. The exhibitor is Mr. P. Saint-Pee, Professor of Practical Agriculture, of 64 Rue Vielle du Temple, Paris, and though we cannot say much for his hive, yet we must say that his bees are the finest Carniolans we have ever seen. They are most magnificently marked and very large in size, and we congratulate Mr. Saint-Pee on the possession of such a strain. Our experience with Carniolans has not been a limited experience, but these bees we have never seen equalled.

'We quit Paris with regret with its gay Boulevards and its light-hearted people, and above all, its big Exhibition—excelling everything before it—and probably its like again will never be seen, and we strongly recommend all English bee-keepers to take a run across the Channel and see this great World's Show.'

In Memoriam.

DEATH OF A CELEBRATED PERTHSHIRE BEE-KEEPER.

Mr. W. W. Young, of Perth, joined the Caledonian Apiarian Society in 1875, and ever since that time took a warm interest in all its concerns. As an exhibitor he was very successful, and, being ingenious, he made many improvements in bee appliances, notably in honey extractors and feeders. Being in the ironmongery trade he brought many American and British inventions before the Scottish bee-keepers as soon as they appeared in the market, and in this way rendered valuable aid to the promotion of apiculture. What deserves special mention is that he was the first to make bees work out a design or form letters in honeycomb. So far back as 1877 he exhibited the Perth arms in honeycomb, being two eagles rampant, with the letters 'Perth Arms' at top and bottom. This was a remarkable piece of work, and was the admiration of all the visitors, who wondered how he had got the bees to work out such an elaborate design. Wherever he exhibited he was sure to carry off a large share of the prizes. He was for some years a sufferer from heart disease, which was the cause of his death on June 7th at the early age of fifty-five. With Mrs. Young and the family we express our sympathy in their bereavement.—R. J. BENNETT, *Secretary and Treasurer, Caledonian Apiarian Society, June 28th.*

BEES: THEIR MEMORY.

'Hark! the bee winds her small but mellow horn,
Blithe to salute the sunny smile of morn.
O'er thymy downs she bends her busy course,
And many a stream allures her to its source.
'Tis noon, 'tis night. That eye so finely wrought,
Beyond the search of sense, the soar of thought,
Now vainly asks the scenes she left behind;
Its orb so full, its vision so confined!
Who guides the patient pilgrim to her cell?
Who bids her soul with conscious triumph swell?
With conscious truth retrace the mazy clue
Of varied scents that charm'd her as she flew?
Hail, Memory, hail! thy universal reign
Guards the least link of Being's glorious chain.'—ROGERS.

REASONING POWERS OF THE BEE.—Bonnet having placed a swarm in a very flat glass hive, the bees constructed one of the combs parallel to one of the principal sides, where it was so straight that they could not give to the cells their ordinary depth. The queen, however, laid eggs in them, and the workers daily nourished the grubs, and closed the cells at the period of transformation. A few days afterwards he was surprised to perceive in the lids holes more or less large, out of which the grubs partly projected, the cells having been too short to admit of their usual movements. He was curious to know how the bees would proceed. He expected that they would pull all the grubs out of the cells, as they commonly do when great disorders in the combs take place. But he did not sufficiently give credit to the resources of their instinct. They did not displace a single grub—they left them in their cells; but as they saw that these cells were not deep enough, they closed them afresh with lids much more convex than ordinary, so as to give to them a sufficient depth; and from that time no more holes were made in the lids.—KIRBY AND SPENCE.

Correspondence.

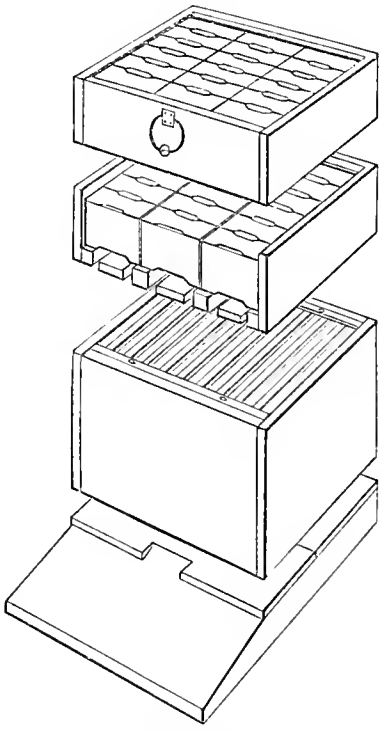
The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR *of the "British Bee Journal," c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

BEE-KEEPING FOR COTTAGERS.

IV.



White's Cottager Hive.

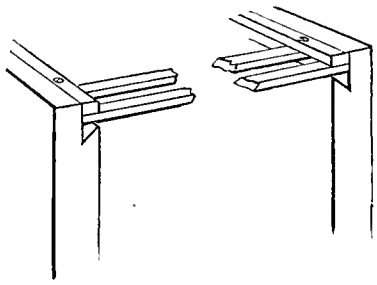
[2116.] This hive has been designed for the use of the cottager or amateur who desires a hive with the advantages of a bar-frame hive, while retaining fixed combs in the brood-chamber.

PARTS.

FLOOR-BOARD.—This is of the pattern introduced by Mr. Howard. When the brood-chamber is placed on the floor-board, square at the *back*, there is a small entrance, as shown, sufficient for only three or four bees at a time. By pushing the brood-chamber forward half an inch it is brought square with the *front* of the floor-board, and an entrance the whole width of the hive is given, and this is necessary during the honey flow.

BROOD-CHAMBER.—This, like the skep, will contain fixed combs, but they will be regularly built from nine bars, which before the swarm is put in will be prepared with starters of foundation in the centre of each. The brood-chamber, when filled, will contain a stock nearly as large as one in a bar-frame hive containing nine frames, and will be of convenient size for any ordinary district.

The illustration shows the construction of the front and back walls, and the method of fixing the bars by means of two slips of wood, which are placed



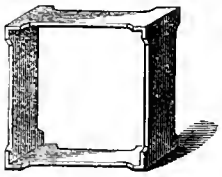
along the ends of the frames and then made fast by means of a couple of screws. The distance keepers to the bars are small nails driven into alternate sides near the ends.

SUPER.—Each super is called a crate, and contains eighteen square boxes called sections, each containing when filled 1 lb. of honey.

Section in the flat.

The sections are mostly of American manufacture, and are received in the flat as shown above.

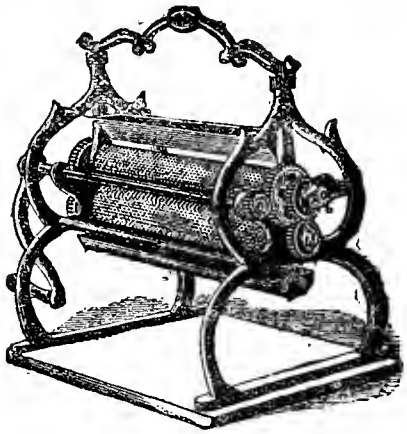
The joints are in the shape of the letter V, and are therefore called V grooves. These, and not square grooved sections, should always be bought.



Section folded.

Before doubling the section the grooves should be moistened with a little water, or they may break through. When doubled a slight tap with a hammer will make the tongued and grooved ends fit, and then we have a section ready for a *starter* or *full sheet* of foundation.

FOUNDATION is the name given to a sheet of wax which has been passed through a mill called a foundation mill, and stamped with the shapes of the cells. A three-



Foundation Mill.

cornered piece of foundation, or a full sheet, should be fixed in the centre of each section as a guide for the bees, which would probably otherwise build their combs so that they must be broken and the honey spilled in removing the surplus.

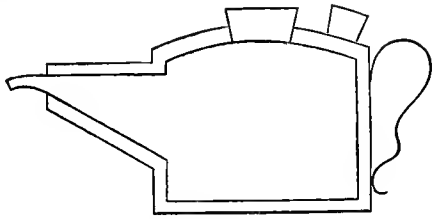
The simplest method of fixing a guide of foundation,

is by holding the guide inside and close to the middle of the top of the section and running along a little wax

Bent Spoon.

which has been melted in a bent spoon held over a lamp.

A more rapid method of fixing the guides is by means of a wax smelter. This is similar in its action to a glue pot, the wax in the centre compartment being melted by the water which surrounds it being brought to boiling point.



Wax Smelter.

When the sections have been prepared with guides they are placed in the crate three in a row end to end.

To get the bees to build their combs evenly in the sections and with the cappings of the cells forming a level face on each side two things more are necessary.

First a set of separators, which are very thin slips of wood, one of which is placed after each row of sections. The crate is filled with first a row of sections and then a separator, until the last row is put in position, when a thick piece of wood takes the place of the separator, and this is held up close to the sections by means of a wedge or spring placed between it and the end of the crate.

Secondly, and this is of the greatest importance, the floor-board must be set perfectly level both ways when it is first put into position, and the top of the brood-chamber, or the section-crate should be tested with a spirit level occasionally.

Stand.—Where sleepers can be got, two laid flat side by side, will form a good and dry stand. A good stand is made with six bricks, two end to end for the front and two more for the back, with another brick lengthways to fill up the space on each side. This makes a stand eighteen inches square. Around this or up to the edge of the front sleeper should be placed ashes well trodden down. Another course of bricks might be added if a higher stand were desired.

Position.—This should always, when possible, be facing the south.

Management.—We will suppose that the parts named have been provided and all well painted. (The first hive should have bars and sections fitted by the manufacturer with starters of foundation, to guide the bee-keeper in preparing other hives or crates.) After placing the floor-board and brood-chamber in position, cover the bars with a piece of ticking and then add two or three squares of flannel or carpet, being careful that the bees cannot escape into the roof. All is now ready for a swarm which should not be less than 4 lbs. in weight.

Hiving the Swarm.—If in the bee-keeper's own garden the swarm should be hived into a skep, and then when the bees have settled, which will be in about half an hour, it should be carried carefully to the new hive, and a part of the swarm rolled on to the alighting board. When these commence running into the hive (a full entrance should be given) the remaining bees should be shaken out of the skep. If there is any difficulty in getting the bees to run into the hive, a few should be pushed with a feather towards the entrance. Unless the sun is very hot, there will not, as a rule, be much difficulty in getting the swarm to take possession of the hive.

The bees will now commence to build their combs in a regular manner from the starters. If the weather continue fine, food will not be required, but should wet weather come the swarm will be almost ruined, if not entirely lost, unless food is given to it while the unfavourable weather lasts.

Supering.—As I have already stated in Art. III., swarms should be supered when the brood chamber is from one half to three parts filled with comb. In placing on a crate of sections, the bee-keeper must go armed with smoker or carbolised cloth, and as he peels off the quilts drive the bees down. Immediately the quilts are removed and before the bees rise again, the section crate should be placed upon the brood-chamber, and the quilts and roofs placed above the super.

In a good district, one or even two crates of sections may be obtained from a good early swarm, but in a moderate district it would be advisable to take only one and then prepare for winter. When more than one crate is used the second should be placed between the first super and the brood-chamber, when the former is three parts filled with comb in which honey is being rapidly stored. A second crate should not be added unless honey is coming in well and the first super is crowded with bees.

Removing Supers.—This operation should not be left until the gathering of honey has almost ceased, but should take place at the close of the honey flow, that the laying of the queen may not be checked before the slow feeding is commenced.

When removing crates, peel off the quilts and put in their place a carbolised cloth, removing the crate bodily when the bees have gone down. Take out the sections one by one in another part of the garden, brushing any remaining bees into a box, which should be laid on its side near the alighting board of the hive from which the crate has been taken. Before packing the sections for market the propolis should be removed and all damaged sections broken up for run honey.—C. N. White, *Somersham, Hunts.*

HONEY-COMB DESIGNS.

[2117.] Seeing a note in the *B. B. J.* regarding pattern in comb and honey, I send you an account of what I did most successfully.

I wanted a Maltese cross, I had a box made of $\frac{1}{2}$ inch wood, $12 \times 12 \times 3$ outside, with a glass cover 12 square. I then drew on a sheet of paper my pattern, placed the glass on it, and having cut strips of super foundation $2\frac{1}{2}$ deep, fastened it to the glass with molten wax exactly on the lines of the drawing, cutting rough moulds of wood to bend the foundation rounds into shape; then to prevent any undue building out of comb on the outsides, I fixed properly shaped pieces of wood to the inside of my box, only leaving $\frac{3}{4}$ inch between foundation and side all the way round. The bottom of box was a piece of $\frac{1}{8}$ wood, with passage ways cut through it corresponding to passage ways between the combs. This was screwed on in place, and then the glass sheet with wax fixed dropped on to its place, and then gummed paper put all round the edge. It is nearly finished now and is very beautifully worked, and the top cells being against the glass show the honey and the pattern.

I intend it for exhibition, and shall detach it from the box by taking off the bottom; first, severing any connexions, then cut the paper and drop the glass into another similar sized box, but with glass sides and without shaping blocks I calculate it will weigh over 15 lbs.—Malta.

WASPS IN BAR-FRAME HIVE.

[2118.] As I anticipated some weeks ago, the nest is enlarging much more rapidly now that the worker wasps are coming into existence, and taking their part in the formation of their home. I was surprised, however, in spite of my anticipation, to find that it had altered so much, both in size and shape since my last examination. The measurements are: length $2\frac{7}{12}$ in., width $2\frac{17}{24}$ in., entrance $\frac{5}{12} \times \frac{1}{3}$ of an inch. Its shape is much rounder than before, and has the appearance of an American russet apple. Through the entrance can be seen four distinct layers, with spaces between each, for the passage of a wasp. I find they have begun to make use of the woollen felt covering of our bees for the construction of their nest, as large holes are eaten in three distinct places. — C. C. Moore, *Altringham, July 1st.*

REDUNDANCY OF QUEENS.

[2119.] The following occurrence appears so curious that I think it is worth recording. A neighbour of mine, a working gardener, had five stocks last autumn, but unfortunately lost one in the winter, which we will call No. 4 for reference. Wishing to fill the vacancy he decided not to super any hive till he had a swarm. About the middle of June, on going home, he found a swarm hanging in the hedge, which had come out unnoticed by his household. He housed the swarm in the vacant No. 4 hive, and examining the other hives came to the conclusion that the swarm had issued from No. 3. Having satisfied his wish for a swarm, he put supers on all the old stocks by tiering them. One day last week on going home he found a commotion round No. 5 as if a swarm had pitched there, and on examining the other hives found the upper tier of No. 2, which had been full of bees, almost empty. A swarm had evidently left No. 2, and forced its way into No. 5, where there was considerable fighting for a day or two. Yesterday morning he noticed what looked like a queen on the ground, and a little further search resulted in the finding of the accompanying eight bees, which appear to me to be full-grown queens. Four were in front of No. 1, three in front of No. 2, and one in front of No. 3, and now he tells me that at dinner time to-day he found another between Nos. 2 and 3. When he brought them to me yesterday, one was pretty lively, walking about, another was alive, but only just alive, and the rest were dead. His bees are working away merrily to-day as if nothing had happened. How do you account for this redundancy of queens all at one end of the row of hives? We are having a glorious season here for bees.—N. Lowis, *Bagborough, Taunton.*

[With such splendid weather as we have experienced lately swarms will in many cases rise with more than one queen, which are subsequently dealt with as 'the law directs.'—Ed.]

Echoes from the Hives.

Fawkham, Kent, June 21st.—I have been a constant reader of your valuable *Journal* for the last two years, and have learned a great deal from it. I find after small experience that bee-keeping is not only most interesting but profitable. I began this pleasant occupation in a strange way. I am an amateur carpenter, and made a bar-frame hive, which I painted and put in my garden, intending to buy a swarm of bees for it, but one day, two years ago, a swarm went into it and made themselves quite at home. I do not know where it came from; no one near me keeps bees. I was so pleased with this that I made more hives, and purchased two stocks of Webster. Now I have five last-year stocks and four good swarms, and before June 8th took fifty perfectly sealed super sections, and have sixty sections partially sealed, which I hope to take off finished the end of the week. I have 147 sections on bees in all at present, and hope for a good year. I have rather encouraged swarming, as I want to begin next year with ten good stocks, and shall limit myself to that number. I manage them entirely myself, and find enough to do making hives, bars, section crates, &c. I have nine good sections spoilt by a little brood in the corner, but I extracted them and got four pounds of honey, cut the brood-comb out, and returned them to the bees. I have a great deal to learn yet, but if interest and hard work help one I shall soon be an expert. I could not live without my bees! A combination of out-door exercise and carpentering is what I want when I am at home; most of my time is spent in town. —H. Lester.

Waltham, June 22.—It has been a grand fortnight of bee weather; swarming has been the order of the day. I hear of several lost swarms; they have either not settled at all after rising, or have settled but taken flight again before they could be hived. I have had a very lively week. One of my bar-hives swarmed four days in succession, despite it having on two supers in which they were working busily. First day rose and went back. Second day settled, and I hived them in a skep about 11.30; at 2.30 not a bee left, all flown back. Third day ditto. Fourth day I took them about 12.20, and at last they consented to stay in their new home. It was a very heavy swarm, otherwise I should have returned it, but on looking through my hive I found it full and no sections deserted. To-day I have taken seven full ones away, therefore I think and hope I have done right. I hear of two lost swarms from a neighbouring village and one from an apiary in a Yorkshire town, therefore I feel pleased mine consented to stay in my own garden.

June 30th.—Grand bee-weather continues, but the hay and seeds are being cut fast, so the time for the honey-glut is speeding away. The woodman who found a swarm of bees on May 24th wished to 'take them up,' as they were rich in comb and honey. They also looked like swarming. He not having seen a hive driven, asked me to do it for him, which I did yesterday successfully, and I hope it is early enough for the bees to make themselves another lot of comb and honey for the winter. I fancy there will be nearly 20 lbs. of honey after it has 'run.' I had a swarm on June 20th, and on the 27th I found comb to the bottom of the hive, and heavy to lift. It was from a bar-frame, and I housed it in a skep. I thought that very good.—Bee-Kay.

Honeycott, Hawes, North Yorkshire, June 29th.—The weather has been all that a bee-keeper's heart could desire since this month came in, the only complaint being a lack of useful bloom such as sycamores, thorns, mountain ash, &c. This being a grazing district, we have no clover except what is scattered about sparingly in the fields and pastures. Several of my stocks have nearly filled their doubling boxes, while others have swarmed. I convey all my swarms to a farmer's garden about three miles from my apiary, which is situated close to a grand stretch of preserved heather; from this they bring in some beautiful honey during August. I have proved that my stocks which are left at home also visit the above-mentioned heather although fully three and a quarter miles off. I have also seen them making tracks from another moor fully four miles off. Truly our bees are wonderful creatures.—John Wharton.

Sunderland, July 1st.—We have had some capital bee-weather here lately, the only drawback being rather too much east in the wind at times. On the 26th one of our stocks gave a good swarm, exactly a year since the same lot swarmed last. On the 27th I took about 15 lbs. of first-class section honey. This year there is an almost entire absence of blossom on the sycamores, plane-trees, &c., owing, I suppose, to the wood not being properly

ripened last year; this will affect the honey-crops unfavourably.—Frank Gayner.

North Leicestershire, July 1st.—The whole of June, with the exception of three days, has been entirely favourable to bee-keepers, supers on and honey taken off at least a fortnight earlier than usual. More than an average harvest already secured. Clover in full bloom, but the weather continues dry and hot. Only ·50 inch rain recorded for June.—E. B.

NOTICES TO CORRESPONDENTS & INQUIRERS.

J. C. Calvertt.—1. *Carbolic Cloth.*—A piece of calico that has been washed.—2. *Box for Queen to travel in.*—If the queen is only confined for two or three hours, any kind of box, such as a pill-box with a few pin-holes in the lid, will do. Several workers should be put in with her; they will have sufficient food in their sacs to supply the queen for so short a time.—3. *When does the Queen of a cast mate.*—Frequently while the cast is in the air, if not then, the first opportunity after they have found a home.—4. *Acid used in Webster's Fumigator.*—The acid will not affect the skin on hands; if you were to rub it on the face it would simply make it smart. See advertising columns as to where to purchase it.

D. O. Flaherty.—*Drone Trap.*—A very efficient drone-trap can be constructed as follows:—Two thin pieces of wood 6 × 5 inches for top and bottom are provided and for sides two pieces of the same material 3½ ins. at one end, tapering down to ½ in., and 6 ins. long. These are nailed together, so forming a wedge-shaped box open at both ends. Pieces of excluder zinc are cut out and bent to the required shape and fixed in position.

T. C.—1. *Storing Honey.*—White glass bottles, obtained of any appliance dealer, are the best and most suitable for the purpose of retail sale. If for wholesale disposal tin cans.—2. *Market for Honey.*—Dispose as much of it as possible in your immediate neighbourhood. Send a few samples to likely customers, stating price required, and in what quantities it is 'put up' for sale. Advertise the residue.

Amateur.—1. *Casts.*—These are best united in the autumn to stocks requiring strengthening. This season most casts will make good stocks by the autumn, and can be sold as such next spring. The latter is the most profitable proceeding, unless some of your stocks are very weak.—2. *Bee Stings.*—The best remedy is to 'get used to them.' Nothing that we know of has any effect in allaying the unpleasantness of a bee-sting to those who have not become 'inoculated' with the virus. After a time a bee-keeper loses all fear of stings, simply from the fact that they have little or no effect upon him.

J. D. Mort.—*Price of Honey.*—1*s.* for good sections; 10*d.* per lb. extracted. It must be first-class to obtain this price retail.

Raw Hand.—1. *Fermented Honey.*—This was caused by mixing syrup with it. Did you pour the syrup in warm? We have had stone bottles burst with a similar mixture. 2. *Sections.*—Your experience is common, but you cannot do better than put the fresh lot next the brood-chamber. You should have no difficulty in marketing the sections you describe, of course as second grade.

T. D. S.—*Artificial Swarming.*—This was the best thing to do under the circumstances. You could have inverted parent stock and propped combs up with pieces of cork placed between each, and allowed them to stand inverted for a couple of days; by that time the mass of honey would have been cleared up and combs fixed. The hive could have then been placed in its origiual position. Of course, it would have had to have been covered while in the inverted position. This applies to cases of combs breaking down, but, as you expected to rear a queen from the parent stock, the hive would have had to have been kept in its inverted position for at least a fortnight, as queen-cells would have been started; these, when righting the hive, would have been destroyed by their inversion.

J. Underlin.—If you kept the swarm in sight till it entered your neighbour's hive, the swarm is your property. It would require permission from your neighbour to enter his garden to repossess the bees.

J. Rickards.—*Moving Bees.*—Do not attempt to move them if you can possibly help it, but if you must, then move them not more than three feet each day, and keep them in their relative positions; that is, let them move towards their new location like a line of soldiers on the march. Do not let the hive advance *endways*, or fighting will ensue. If the new site is not parallel with the present one, then let those that are nearest to it advance or retire as the case may be more slowly than the others.

C.—*Several Queens.*—As many as seven queens have been seen among a swarm.

Alpha.—1. *Super Foundation.*—When bees build comb in preference to using the foundation provided, you may reasonably doubt its purity. 2. *Queenless Stock building Queen-cell.*—This question has cropped up before. There seems no other explanation except that they steal the egg from some other colony. But the manner of the theft is unknown. What a pity you did not leave it to come to maturity!

Miss Ruddack.—*Foul Brood.*—We should brush the bees off the combs into the hives. Give new frames with sheets of foundation. Burn those removed *immediately*, and feed with phenolated syrup. You will naturally have a difficulty in getting them to take it during a period when they can gather honey. If you have a *clean* built-out comb which is quite empty, lay it on its side, and pour the phenolated syrup in a fine stream on to it from some height. Serve the other side the same. Place this in the centre of the hive, and as the bees will be compelled to clean it up, they will get physicked.

A. H. S.—1. *Hiving Swarm.*—When it is wished to get section honey from a swarm, it is best to hive them on frames having half-inch strips *only* of foundation, placing a sheet of queen-excluder over the frames, and put the sections, with *full sheets* of foundation, on at once. 2. *Weak Stocks.*—Not worth supering, unless you unite them into one stock, destroying one queen; or, by preference, destroy both old queens, and introduce a young queen at once.

F. Clark.—*Suspicious Comb.*—A bad case of foul brood. See reply to Miss Ruddack.

Charles Eyles.—We cannot do anything in the way of recommendation, as we possess no knowledge of the Society.

G. Spence.—*Dead Queen.*—This, no doubt, is a case of supersession.

Question.—Can any of your readers tell me if there is any honey or pollen in the bloom of potatoes? If so, in what proportions?—W. T. C.

SHOWS TO COME.

Bees, Hives, Honey, etc.

July 24th and 25th.—Lincolnshire Agricultural Society at Louth. Entries close July 9th. Secretary, Stephen Upton, St. Benedict's Square, Lincoln.

July 31st and August 1st.—Glamorganshire General Agricultural Society at Treorky, Rhondda Valley. Secretary, D. P. Davies, Commercial Street, Aberdare.

August 6th, 7th, and 8th.—Yorkshire Agricultural Society, at Hull. Entries close June 29th. Secretary, Marshall Stevenson, York.

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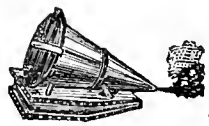

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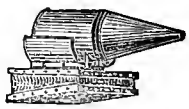

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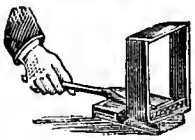

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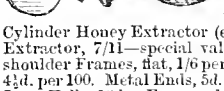

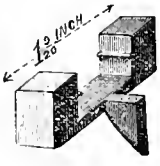

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Communications to the Editor to be addressed 'STRANGEWAYS PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.'

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Editorial, Notices, &c.

THE ROYAL SHOW AT WINDSOR.

(*Continued from p.* 294.)

In Class 80 for the best hive, price, complete, not to exceed 15*s.* G. Neighbour & Sons are again successful in gaining another first; C. Redshaw comes second; the the third prize goes to Neighbour, and a H.C. to S. J. Baldwin, Bromley, Kent. It is stipulated that this hive must contain two interchangeable body-boxes, each to hold ten standard frames, each with porch, twelve-inch doorways capable of being contracted at pleasure, one set of frames with strips of foundation, two division-boards, a case containing one-pound sections with foundation and separators, roof, floor-board, legs, so that purchasers cannot possibly complain of not getting plenty for their money. The first prize has a most excellent recommendation in the shape of an arrangement for giving the brood-chamber a good air-space underneath the frames in winter. This is done by making the shallow-frame super in two parts, fixed together by a couple of thumbscrews; on unscrewing these we are provided with a strong rim (having suitable opening for entrance) on which the hive rests. C. Redshaw's second prize hive is again remarkable for excellent workmanship, as, indeed, are all in this class, comprising nine entries. Baldwin's Windsor hive has a simple arrangement underneath by which the floor-board is dropped a little, so as to facilitate the hiving of a swarm, &c.

One cannot help noticing, in passing, many roofs with such very shallow sides that a sigh would seem almost sufficient to blow them off; true, there was an exceptional one, heavy enough for a small haystack. The rule, again, with most hives, seems to be the hanging of frames at right angles to entrance—a debatable point. An exception here was in Baldwin's entries.

For the best 10*s.* 6*d.* hive, one body-box of ten frames with strips fixed, two division-boards, porch, floor-board, and roof, case of twenty-one 1-lb. sections with foundation and dividers. Again we have to congratulate Geo. Neighbour & Sons on obtaining first prize with a hive of marvellous cheapness; this is also provided with their wintering ledge above alluded to. The same firm are also commended for another hive in the same class of eight competitors. C. Redshaw gets second honours this time with a hive having his special doorway, and which has the rare merit of containing a super crate so fitted as to cover the openings between frames. The third prize goes to S. J. Baldwin for his Windsor hive. This has a capital alighting-board, and seems specially built for the production of both extracted and section honey. In the entry of W. P. Meadows, we should have liked to see more room given for the fingers to get hold of frame ends, and also suggest that eleven-inch wood for slope of roof is very liable to warp and split. The hive carries a particularly good section crate.

For the best honey extractor, Mr. Meadows, of Syston, comes in *facile princeps* with a very free-acting, well-balanced machine, in which the motive power is directly upon the cage; the disadvantages of complicated side gearing are thus quite obviated. The second prize was withheld.

In Class 83, for the best honey extractor not exceeding 12*s.* 6*d.* in price, we come to what we consider the best article in the whole show of bee-keepers' appliances. The first prize falls to W. P. Meadows, for an extractor which exactly fills the vacant place between those on the Little Wonder principle and the fearfully and wonderfully made structures of a more expensive kind, yet capable of doing the work of both. A receiving can about a foot high (two foot stays and spout with lid) supports, on a strong steel rod in its centre, the extractor proper; this reaches a short way into the can. The extractor takes two frames, and from strong cross straps a steel cone works in a hole turned in the end of the central rod. The handle is fixed to cross straps, and *the whole extractor revolves* with the slightest pressure. When without the impetus of heavy combs in the cages we found the machine run by itself for nearly five minutes after being fairly started, so that in use it may be left (whilst preparing other combs, &c.) to do its work alone. When the receiving can becomes full, the extractor is easily lifted off and the honey poured into suitable receptacles with ease. We may say whilst on this subject, that an extractor on this principle was exhibited by Mr. T. W. Cowan twelve years ago at the Alexandra Palace.

Class 84 for the best pair of section racks contained ten entries, the prizes falling to (1) G. Neighbour & Sons (Lee's section frames); (2) T. B. Blow (wedge fastened to quilt); (3) J. H. Howard (bee passages on outer sides of section).

The best slow stimulating feeder: (1) J. H. Howard (a piece of oak let into the feeding block, gives truth, prevents warping, and the consequent leakage into hive); (2) W. P. Meadows, for a tin bottle-feeder, similar to a preserved fruit tin, with self-opening lid easily opened with a penny piece; the feed holes are pierced in the lid. Nine entries in this class ranged from 9*d.* to 4*s.* each, the prize-takers' feeders being 1*s.* 3*d.* and 1*s.* 6*d.* each respectively.

Quick autumn feeders, holding at least 5 lbs. of food, brought also nine entries; the first prize going to Mr. Howard once more, for a wood feeder of the Canadian type; Edey & Son (St. Neot's) take second with a tin feeder (wooden float), which is refilled without disturbance. For another feeder, J. H. Howard gets H. C.

In Class 87 for the best smoker, where all are good, it must have been difficult to adjudicate: (1) G. Neighbour & Sons; (2) S. J. Baldwin. Eight entries.

(*To be continued.*)

EMINENT BEE-KEEPERS.

No. 7. CAPTAIN J. E. HETHERINGTON.

Prominent amongst American bee-keepers stands the name of Captain Hetherington, not only because he is the largest bee-keeper, but also because he is one of the most practical men of the day.

He was born on the 7th January, 1840, at Cherry Valley, New York, and still resides there. His father was an English gentleman of education, and died when the subject of our sketch was less than three years old, so that his training fell upon the mother, a charming lady whose acquaintance we were pleased to make when we visited Captain Hetherington, and who is still living under the shelter of her son's roof.

CAPTAIN J. E. HETHERINGTON.

Captain Hetherington bought his first bees when he was twelve years old with money he had earned for that purpose; and with these bees he had good success, for within five years he was sending honey to market by the ton. This honey was secured in glass boxes although the brimstone pit was in vogue at the time. In 1857 he invented a double-walled hive with confined air-space between the walls, and after making and trying 600 of these he gave them up because they did not come up to his expectation. He then tried straw hives, some of which were adapted to the Quinby hanging frame. He had altogether 1400 straw hives with moveable and immoveable combs. With these he adopted artificial swarming, which was so successful, that frequently he had not a single natural swarm from the whole apiary. On trying the moveable frame he was so convinced of its superiority, that he adopted the newly invented Quinby hive with closed end frames.

In 1861, in answer to a call from his country, he entered the army, and for a time gave up what was even then the largest bee business. His military career was short but brilliant, he enlisted as a private in the 1st Regiment U.S. Sharpshooters, and was discharged in 1864, a Captain. He was wounded three times, and owes his life to an interesting relic, which we had the pleasure of seeing, a shattered sword, which he had in his hand and which diverted a bullet from entering his body, at the same time wounding his hand terribly. His military life broke down his health, so that for two years his life was despaired of. He, however, took up bee-keeping with the same zeal as in former years, and has gone on prospering. Everything of any value has been tried by him, and not in a small way, but always on a large scale.

It was very interesting during our visit at Cherry Valley to look at Captain Hetherington's museum of discarded implements. He has hired a large disused chapel, and this is filled to repletion with almost everything one can imagine. Here we saw a hive with metal runners which he had used in 1856, and he said the metal runners were not new then. Box-hives of various descriptions, honey-boxes, feeders, extractors, floor-boards, and a host of other articles. The room was literally crammed. As there is nothing new under the sun, we were not surprised to see in use frames with a split bottom bar and foundation built out close to the bottom.

The apiaries are a model of neatness, and the 3000 hives which he now has are situated in twenty-two apiaries. He believes in producing both comb and extracted honey, and is always seeking to place it on the market in the most saleable form. He uses comb foundation very largely, and was the inventor of the wired flat bottom foundation now made by Messrs. Van Deuzen, of Sparbrook. He has discarded all others in preference for this, and no combs can be straighter or more regular than his. In sections the thin flat-bottomed foundation is used, and this is worked out so thin that there is no 'fish-bone' or hard centre; and we were delighted with the beautiful finish of the sections we saw. Captain Hetherington works three racks of sections on a hive, and these are removed bodily and taken to the honey house where piles of them might be seen ready for sorting and storing. The crates used are lined with paper; and slips of wood on the bottom, on which the sections stand, prevent them becoming soiled should the honey drop. All hives and appliances are made at home, the material being prepared at his mills five miles away.

The wintering problem is the great difficulty at Cherry Valley, as it is situated in a snow belt which extends about fifty miles north and south. Outdoor wintering had to be given up, and at a cost of 500 dollars a repository was built, shown in illustration (fig. 1), partly above and partly under ground, which did not prove a complete success. Another house which we illustrate (fig. 2) holds 1000 hives, and although his success of late has been above that of the average bee-keeper he is not entirely satisfied with his wintering. In the autumn all hives are examined, and none but strong stocks are wintered, sometimes as many as one-third are thrown out as not fit for the cellar. The Captain raises all his queens and believes in young ones a year old. The cells are raised on strips of tin slightly curved and the process is similar to that of Mr. Alley, except that two worker eggs are destroyed for every one left. The

queen-cells are then placed in a nursery for hatching or until ready for introduction.

In 1874 he made a large shipment of comb honey to England, the first that had been made, and has never had any difficulty in finding a market for all his produce.

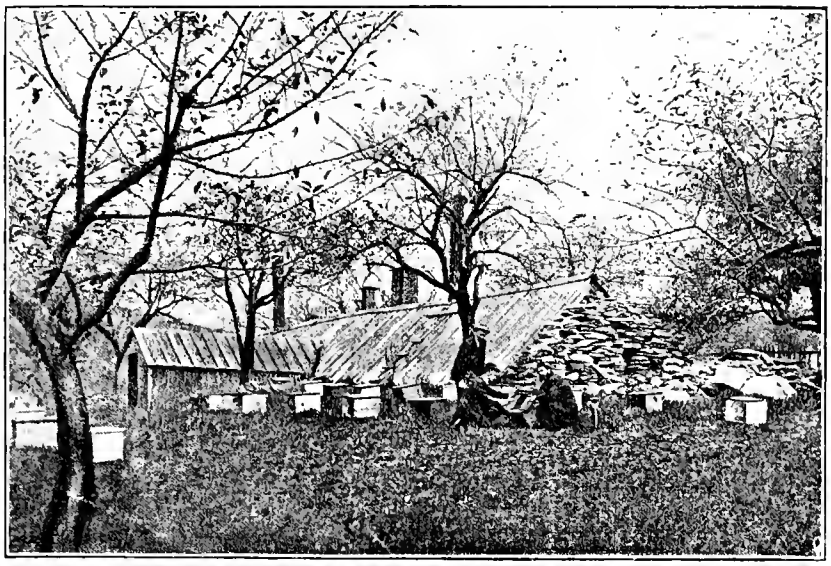

Fig. 1.

He drove us over to one of his out-apiaries, and here we found the bees in as good order as those at home. All these out-apiaries are visited at least once a-week, and Captain Hetherington is ably assisted in the work by his brother. It was a busy time when we were there, and Mr. J. Hetherington was bringing home cart-loads of supers that had been removed from the hives, whilst the men were sorting and preparing the sections for market. At the time we visited Cherry Valley Captain Hetherington had 2700 stocks of bees in twenty-one apiaries.

The Captain was one of the founders of the North-eastern Bee-Keepers' Association, one of the oldest organizations of the kind in the country, and was its president after Mr. Quinby's death, and at one time a writer in the bee papers. He is most genial and a kind host, ever ready to entertain his bee-keeping friends, and makes those who visit him feel at home at once. His name is seldom seen anywhere in connexion with bee-keeping, but for all that he is one of the most advanced bee-keepers and the largest producer of honey with the least fuss of any one we know. The bee-keepers of

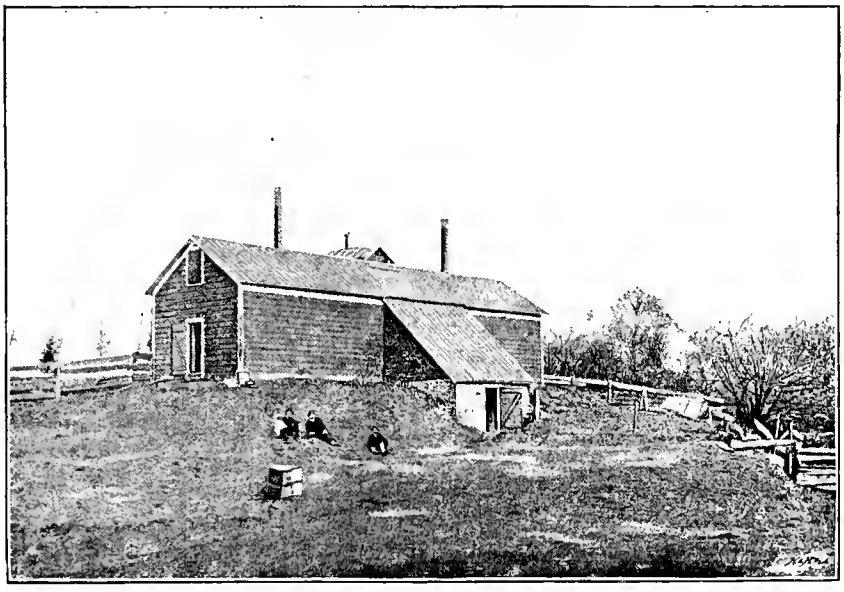

Fig. 2.

America may well be proud in having a man of such indefatigable energy, great ability, and vast experience amongst them; and we hope the Captain may enjoy many years of health in carrying on his favourite pursuit. We always look back with pleasure to the happy days we spent at Cherry Valley in his company and that of his accomplished wife.

REVIEW OF GERMAN AND FRENCH BEE JOURNALS.

By J. Dennler, of Enzheim, Alsace-Lorraine.

a. '*Nördlinger Bienenzeitung.*' *No.* 10, *dated* 15*th May. Editor, Mr. W. Vogel.*—This number contains an article by Mr. L. von Stachelhausen in defence of the Langstroth hive against the attacks of Pfarrer Mündel, and the following recipe, by Mr. C. Peters, for preparing a paint to be used for wooden bee-hives:—Mix white lead with varnish and add lampblack until the colour becomes greyish-blue, somewhat like the colour of slate. After applying the first coat of this paint, which should not be put on too thickly, the box should be strewn over with very fine and perfectly dry sand. When the paint becomes quite dry, any grains of sand not adhering firmly should be brushed off with a stiff hair brush. The hive is then ready for the second coat, which should be laid on heavier than the first. Thus painted, the boxes become quite weather-proof, and have a very pleasing appearance.

Preserved Honey.—In the year 1384, Berlin was almost entirely destroyed by fire. New houses were afterwards erected on the site of the ruins. In pulling down a house in the Post Strasse in 1888, the workmen came upon some ruins of the fire of 1384. The demolition of a house frequently affords to antiquarians matter for investigation, and here was found a dish containing some curious-looking stuff, which, on careful examination, proved to be paste of honey, which had been well preserved in this dry rubbish for over 500 years.

b. '*Die Biene und ihre Zucht.*' *June Number. Editor, Mr. Kern.*—In an article headed 'A last advice to Bee-masters and Amateurs,' Pfarrer Mündel of Kandern sharply criticises the Bogenstülper, and its introduction into the Duchy of Baden. The capacity of this hive is only 44 litres (2700 cubic inches), while experience during the last thirty years has proved that the measure of capacity should at least be 68 litres (4150 cubic inches) for hives to be used in Baden.

c. '*Deutscher Bienenfreund.*' *Editor, Mr. Kraucher.*—No. 10 of this Journal has an interesting article entitled, 'Bees as Combatants for German Freedom.' After the defeat of Napoleon I. in Russia, he was anxious to restore his prestige in Europe, and for this purpose he returned to Germany in 1813. The battles of Lützen and Bautzen were fought, but no very decisive result was obtained. At Dresden his armies by degrees concentrated again. On their march into Silesia a division of the Commissariat department, consisting of about 100 wagons, with the necessary escort, were ordered to encamp at Naundorf, near Gaussig, ten miles from Bautzen. The Frenchmen being fond of luxuries, a few of the soldiers of the escort paid a visit to the neighbouring apiaries, in order to rob the colonies of their honey. The bees naturally resented this spoliation of their stores, and attacked the invaders with great fury, their onslaught extending along the whole line, both horses and men suffering severely from their stings. Unable to cope with such an enemy, the French retreated in the utmost haste to Tröbigan, where they remained some time, plundering the people in a dreadful manner. Austria now joining Germany against Napoleon, Hungarian Hussars made their appearance, and drove the French out of Tröbigan, Putzkau, &c., where they have never since been seen.

d. '*Die Honigbiene von Brünn.*' *Editor, Hubert Rull. No.* 5.—'*Bee-pasture: How it may be improved.*' Among hardy plants that have a tendency to run wild, the hyssop (*Hyssopus officinalis*) is one of great importance to bee-keepers. It flowers in all kinds of soil—the sides of ditches, patches of woodland, &c.—and it can be easily propagated by dividing the plants. It can be used as a bordering for gardens, giving seed in abundance. The pistils and leaves of the hyssop remain green in winter, and at this season of the year furnish a good feed for hares, a hint to farmers who wish to encourage them on their farms for sporting purposes.

e. '*Leipziger Bienenzeitung.*'—In the number for June Mr. Clemens König, Head master of a High School, discusses '*The Development, Structure, and Capabilities of Bees.*' Among other things he refers to the important part which honey-gathering insects, more especially bees, fulfil in the economy of nature. Of all the different insects, he concedes the first place to bees in relation to the fertilisation of indigenous plants, the services rendered by bees in this respect being far greater than those of all the other *Hymenoptera* together. Mr. König divides all plants into *Hydrophilæ*, *Anemophilæ*, and *Zoidiophilæ*, the latter producing blossoms, to which the name of flowers is given, which, by their colour, scent, taste (being sweet), and nutritive properties, attract various insects, causing them to carry pollen from one flower to another. Plants of this kind represent as it were the retail shopkeepers in the vegetable kingdom, and a garden or meadow full of flowers may be compared to a fair where signboards of all colours are exhibited to attract customers for the various wares that are exposed for sale. Here everything is so arranged as to suit the requirements of all, from the wealthy gentlemen to those moving in a more humble sphere of life; and the flowering meadow is the fair of these small insects, whose doings in many respects resemble those of man, like the wine-drinker, who goes from one shop to another until his thirst is quenched; the beer-drinker, who, under similar circumstances, goes from one cellar to another; or the gin-drinker, who, having a craving for the liquor that tickles his throat, frequents his favourite dram-bar, so these honey-gathering, pollen-eating, and pollen-collecting insects fly from flower to lime-tree, from lime-tree to heath, equally intent on satisfying their wants. In exceptional cases only, especially after trying flower after flower without finding honey, do bees visit flowers of a different kind during one excursion.

(*To be continued.*)

BEE-KEEPERS' VOCABULARY;

Or, Glossary of Technical and Scientific Words used in Works upon Bee-keeping.

Corselet. *n.* (*Fr. corselet*, a little cuirasse.)—That part of the body of a bee which answers to the breast of other animals; the thorax.

Costal cells. (*Fr. costal*, fr. *costa*, a side, a rib.)—The three outer cells along the front edge of the wing.

Costal vein.—The vein along the front edge of the wing.

Couple. *v. intr.* (*Fr. coupler.*)—See *Accouplement.*

Cover. *n.* (*A.N. coverer*, fr. *L. co-operio*, I cover wholly.)—Anything spread over a hive for protecting it; roof.

Cover-board.—Improperly used for adapting-board (*q. v.*); crown-board.

Covered way.—The covered entrance passage to a bee-hive.

Cowcloome.—Used by Butler and others to designate cow-dung tempered with dirt, for putting round straw hives.

Cowt. *n.*—A colt; third swarm of bees in the same season. (Var. dial.)

Coxa. *n.* (*L.* the hip.)—The first joint of the leg articulated to the thorax; the hip.

Cranium. *n.* (*L.* fr. *Gr. kranion.*)—The skull; that part of the head enclosing the brain.

Crate. *n.* (*L. crates.*)—A skeleton box for packing sections; sometimes used for the case holding sections while worked on the top of a hive.

Crenate. *a.* (*L. crena*, a notch.)—Notched; indented; scalloped.

Cross. *a.* (fr. *L. crux.*)—Irritable; perverse; intractable.

Cross. *v. trans.*—To cross the breed is to produce young from the different varieties of the same species.

Cross-bred.—A queen of any breed or race mated with a drone of another breed or race is said to be cross-bred; cross-mated.

Cross-sticks.—Sticks placed across the inside of skeps or box-hives, intended to support the combs.

Crown-board.—The board placed on the top of the hive; sometimes also called honey-board.

Crude wax.—Pollen was erroneously so called by Réaumur, and some others.

Cry back.—This term derived from a well-known hunting expression, is employed by breeders of stock for *Atavism* (*q. v.*)

Crystalline cones. (*L. crystallinus*, made of crystal, and *conus*, cone.)—The lenses of the eye situated immediately beneath the cornea, and between this and the great rods. See *Compound eyes.*

Ctenoid. *a.* (*Gr. kteis*, a comb, and *eidos*, form.)—Comb-shaped.

Cuckoo bees.—Bees parasitic on other bees, laying their eggs in the cells or nests of their hosts. In the genus *Œlioxys* the bee closely mimics its host Megachile. It is also parasitic upon the genus Sarapoda. The species of *Nomada* are very numerous, they have a smooth, gaily coloured body, and resemble wasps. They are also called 'Nudipedes,' or naked-legged Cuckoo bees. They lay their eggs in the nests of *Andrena, Halictus, Panurgus*, and *Eucera*, where they may be found in all stages of development corresponding to those of their hosts.

Culture. *n.* (*L. cultura.*)—See *Apiculture.*

Cups. *n. pl.* (*Sax. cop*, or *cupp.*)—Bell-glasses used as supers were called so by Bromwich and other writers; queen-cells after they have been vacated and cut down.

Cure. *n.* (*L. cura.*)—A healing; restoration from disease to health.

Cure. *v. t.*—To restore to health.

Cushion. *n.* (*Fr. coussin*, a pillow.)—A bag stuffed with chaff or some porous material, placed over or at the sides of the frames in cold weather.

Cuticle. *n.* (*L. cuticula*, dim. of *cutis*, skin.)—A thin pellucid membrane covering the true skin.

Cutting combs.—See *Comb cutting.*

Cylinder. *n.* (*Gr. kylindros.*)—A long circular body of uniform diameter, and its extremities forming equal parallel circles. The outer circular case of an extractor is called the cylinder.

Cyprian bees.—A race of bees found in the Island of Cyprus. They resemble Italian bees, but are of a much brighter yellow colour. They are very active, extremely prolific, and excellent honey gatherers, but also extremely vindictive and difficult to handle.

IRISH BEE-KEEPERS' ASSOCIATION.

The Committee met on the 2nd inst. Present: Rev. R. Seymour, in the chair, Messrs. Read, Edmondson, Gillies, and Hon. Sec. A programme of lectures to be delivered at various places in the bee-tent was decided upon.—HENRY CHENEVIX, *Hon. Sec.*

BEES ON BOARD SHIP.—The B. I. steamer *Canara*, which arrived at Colombo on Saturday, May 25th, from Bombay *viâ* coast ports, brought more than her usual number of passengers. At Cananore, where she lay two miles from the shore, a large swarm of bees, numbering some tens of thousands, settled on her fore-yard, forming a cluster about three feet long by eighteen inches in width. It was considered inadvisable to attempt to dislodge them before the arrival of the vessel at Colombo, as at each of the coast ports she lay some miles from the shore. But on Saturday night, the third officer, enveloped in a blanket and armed with a hose, climbed the mast and gave the dangerous visitors a dose of salt water. The infuriated bees flew about the ship all night in search of their disturber, but not finding him, in the morning concluded to quit. They were last seen making a bee-line for the northern suburbs of Colombo. As the *Canara* is in quarantine, we hope the authorities took steps to prevent the bees landing before practique was granted.—*Ceylon paper.*

MEMORY OF BEES.—About twenty years ago a swarm from one of the hives of Mr. William Stickney, of Ridgemont, Holderness, took possession of an opening beneath the tiles of his house, whence, after remaining a few hours, they were dislodged and hived. For many subsequent years, when the hives descended from this stock were about to swarm, a considerable party of scouts were observed for a few days before to be reconnoitring about the old hole under the tiles; and Mr. Stickney is persuaded that if suffered they would have established themselves there. He is certain that for eight years successively the descendants of the very stock that first took possession of the hole frequented it as above stated, and *not* those of any other swarms; having constantly noticed them, and ascertained that they were bees from the original hive by powdering them while about the tiles with yellow ochre, and watching their return. And even at the present time there are still seen every swarming season about the tiles bees which Mr. Stickney has no doubt are descendants from the original stock.

THE IDIOT BOY AND BEES.—Mr. White of Selborne has given an account of an idiot boy who from a child showed a strong propensity to bees. They were his food, his amusement, his sole object. In the winter he dozed away his time in his father's house, by the fireside, in a torpid state, seldom leaving the chimney corner; but in summer he was all alert and in quest of his game. Hive-bees, humble-bees, and wasps were his prey, wherever he found them. He had no apprehension from their stings, but would seize them with naked hands, and at once disarm them of their weapons, and suck their bodies for the sake of their honey-bags. Sometimes he would fill his bosom between his shirt and skin with these animals; and sometimes he endeavoured to confine them in bottles. He was very injurious to men that kept bees, for he would glide into their bee-gardens, and sitting down before the stools, would rap with his fingers, and so take the bees as they came out. He has even been known to overturn the hives for the sake of the honey, of which he was passionately fond. Where metheglin was making he would linger round the tubs and vessels, begging a draught of what he called *bee-wine*. As he ran about he used to make a humming noise with his lips resembling the buzzing of bees. This lad was lean and sallow, and of a cadaverous complexion; and except in his favourite pursuit, in which he was wonderfully adroit, discovered no manner of understanding.

A DIFFICULT QUESTION.—Why, in the event of a little difference of opinion, is the bee likely to have the best of the argument? Because, of course, it always carries its own point!—HONEYSUCKLE.

[This is a mistake; sometimes the other party carries it, and then he says it hurts.—ED.]

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements).*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

JOTTINGS BY 'WOODLEIGH.'

[2220.] *In answer to inquiry re Packing Honey.*—I glaze all sections sent out unless specially desired not to do so, consequently glazed sections are much stronger to travel than unglazed ones. If I was packing unglazed honey I should cut some pieces of wood out of thin backboard, such as is used by picture-frame manufacturers, the size of two sections standing side by side, and tie a piece of string round the lot before I wrapped it in paper. This would protect the honey from damage when packing the hay down the sides of parcel, and if tied up tight ought to protect the honey as well as the glass attached to the side of sections.

Wanted a Screw Cap Bottle that will not leak.—I noticed nearly every bottle of honey (screw capped) that was staged at the Royal Show leaked enough to make the staging messy. Now this is a great drawback to our industry, as it debars dealers from handling English honey by reason of the mess it makes. Here is an opening for the inventive faculty of supply dealers, and a grand opening, too, if a good, strong, cheap, white glass bottle that will not leak with a screw cap can be produced at a moderately cheap rate. Someone will say why insist on a screw cap. The reason is when the purchaser has a screw cap he has something to protect the honey from dust and insects while it is being consumed. There are few who eat a pound at a meal or in one day.

Price of Honey.—The continued drought has considerably reduced the out-put of honey during the last ten days, consequently with a diminished crop the supply will be *short*, not half what will be required to carry us on till Christmas. Those who are fortunate enough to hive in districts where rain has fallen, and have had a good haul, should stand up for price and make a market when they can, the opportunity may not come again for many years. Take the tide at the flow, &c., is my advice just now, and don't rush all your honey into the market at once. If sales lag, advertise in the *B.B.J.* I have always found it a good medium in the past, and now, with a wider circulation at one penny, it must be, as a natural sequence, a better medium than it has ever been before. I have many jottings, but post time has come, and Her Majesty's mail, like the old man with the scythe—'Father Time'—waits for no man, not even—WOODLEIGH.

NEPETA MUSSINI.

[2221.] I beg to mention that I desire once more to say a few words to your readers. First, I am glad to note that I have now completed all my orders for Nepeta Mussini plants. When I last advertised them it was my full intention to sell off what I had then in stock, if I could, at the low price charged, and then not to strike any more, thinking that all needs were supplied; but applications were so numerous that I could not supply all before the 25th of June, and I have now got a large stock of plants left ready for delivery should they be wanted, and I have arranged to always keep up a supply. Conditions will be found in the advertisement columns. It may be interesting to some to know that I have sent some of the above plants to Nova Scotia, and it appears the wider they are known the more they are sought after. I am glad to say that my bees are doing some grand work, and if the fine weather continues for a little longer I shall be able to give a good report for the season of 1889. I have had quite a job to keep anything like pace with the bees' requirements. In fact, I could not prevent six stocks from swarming, although some of them had as many as forty-four Standard frames to work upon, others with fourteen to sixteen frames with forty-eight to seventy-two one-pound sections to work upon. In each case I formed a nucleus with five frames with one queen-cell, cutting out all others, then divide a part of the brood with other stocks, then fill up hive with empty combs and comb-foundation, and return the swarms at once, and all have entered the hives very freely and set to work in good earnest and doing well.—C. H. W., *Aylesford, near Maidstone.*

GLASS SECTIONS.

[2222.] An undoubted genius has just invented, and apparently patented, a new (?) glass section, the width of each of the four pieces of glass forming it being the same. With an elaborate description of the result of his ingenuity, he alarms us with a warning, that any one venturing to say he knew the dodge before may have the unpleasant task of proving the statement. Now, sir, I, for one, am fully prepared to have the pleasant task of proving abundantly that I have had beautifully worked-out glass sections, made in an exceedingly simple manner by myself, of four pieces of glass all same width; and, in fact, the dimensions exactly the same every way, three years ago. I might go further back, and say that I warmly thanked a member (Mr. Johnson) of our Committee for a timely hint he so kindly gave, and which enabled me to fix in the comb foundation with ease. My crates of different kinds, with glass, wood, or zinc dividers appear to be nothing like that apparently recently patented.

A 'brother chief' and neighbour of mine (Mr. Richards) about two years ago paid me a visit, and walking into my parlour, there found me sitting at ease making glass sections, with dozens completed upon the table. The county expert (Mr. G. Reynolds) was charmed beyond all measure twelve months last April, when, on visiting me for instructions regarding his spring tour, I placed before him a couple of crates of glass sections. Oh, what a surprise! Yes, sir, and to a great many people, especially respecting the simplicity of the business. If you care to know how I got at it all—I dare not say invented, for you know, sir, that the off-spring of necessity is invention—I will tell you as briefly as I can. Your humble servant being a photographer of the very amateur type, and able to spoil negatives by the dozen through inability in the various processes, soon became possessed of some hundreds of glasses, which, by-the-bye, were always in the way. Absolute necessity for their removal or utility somehow or other sent me off a-thinking, and while they lay before me in the dark-room, a succession of ideas, similar and dissimilar, flashed through my poor brains like light through the lens of an instantograph. A few moments later found me trying my very hardest to make a section with four of the glasses in my studio. After thinking, dreaming, and trying again and again for several days, and indeed nights in succession. I soon began to fancy I had scored another goal. Of course I found out in due course that the glasses were much too wide, and had necessarily to be reduced to a width of 2 in., which is the size I have mainly used since.

About three weeks ago I had the honour to present a

crate of my glass sections to a well-known member of the Oakley hunt. In my apiary the several crates of glass sections, now most encouragingly filling with honey, in all probability from a field of alsike clover hard by, were all taken out of the hives empty last autumn, therefore they must have been made before the commencement of the eight months mentioned in the communication. Amongst the many who have seen my bees at work in glass sections, and I may say they can be seen without at all disturbing them, are Mr. Carruthers, ex-Superintendent of Police, Sharnbrook, and a young squire, who is at least a successful apiarist.

I beg, in conclusion, to say that nothing but the issue of the warning would have induced me to write this letter, and to apologise for thus trespassing upon your kindness by soliciting the favour of its insertion in your invaluable paper.—W. Rushton, *Hon. Sec. Beds B.K.A., Felmersham, Bedford, July 4th.*

'THE MAN WHO UNDERSTOOD ALL ABOUT BEES, YOU KNOW!'

[2223.] Last November Captain W. and I went to an auction. The Captain was very anxious to set up as a bee-master. There was a stock of bees in a bar-frame hive for sale, and also two or three bar-frame hives containing empty comb. After inspection I strongly advised purchase, and the Captain got the whole lot for a mere trifle. I offered any assistance that might be required when the time for honey-making should come, but it was politely declined, as his man 'understood all about bees, you know.' Well, the spring came. June came, and I heard that my neighbour, the Captain, had secured two swarms in bar-frame hives from the stock. A third swarm that had come from somewhere had also been secured in a bar-frame hive. About a week after this I was one day busily engaged in giving my bees more frames with comb-foundation when the Captain's brother called. 'Hullo!' he exclaimed, 'what is that stuff you are giving your bees?' I explained the use of comb-foundation.

'Our man gave our bees nothing of the sort.'

'What did he do then?'

'Oh, he put in the bees, and then put in these sticks!'

'I should rather like to see your bees,' I said.

'Yes: do come and see them.'

The next day I called: the Captain had gone from home; his brother, however, was in. We went to the last-hived swarm. I tried to remove the covers, but found some difficulty. At last I succeeded and placed it carefully on the grass. It struck me as being somewhat heavy. I looked at once into the body of the hive. No quilt! empty frames! only a few bees! 'Where are the bees?' I inquired of the Captain's brother who stood at a respectable distance. 'In the other part,' was the reply. I took the cover up and there, sure enough, was the swarm hard at work making comb diagonally across the top of the cover, much of which was filled with honey. I removed the empty frames and replaced the cover. Examining the frames the events of the sale recurred to my mind.

'What has become of the combs? These frames were full of comb.'

'Oh, our man's wife cleaned them up for the bees!'

'You mean she cut out all the combs?'

'Yes, exactly so; and scraped them clean for the bees to fill again.'

'And the other frames?'

'Have all been served in the same way!'

'And the other swarms?'

'Have been all hived the same as these!'

Gentle reader, do you realise what had been done?

Probably some thirty frames of good tough comb, that would have stood any amount of extracting during the late and present honey glut, had been cleaned up. In other words, all the comb cut out! Bees placed in empty hives without foundation or quilts, and this done by a man 'who understood all about bees!'

Mem.—Be careful to whom you trust your bees.

The Captain was away for a long holiday.—Sigma.

AN EXPERIENCE.

[2224.] Being a constant reader of the *B.B.J.*, I have often seen letters relating one's experience for others' benefit, so perhaps you will admit the following to your paper.

At 1.40 p.m. to-day, I had a swarm of Ligurians. These had nearly all settled in a row of peas, when a swarm issued *from a swarm of May 23rd.* This latter was hived on eight frames, and an upper storey of eight more, and I have extracted 11 lbs. from upper storey. The second swarm of to-day, with, you please note, the old queen and black bees, seemed disposed to join the Ligurians, and some did alight, but to my surprise the Ligurians would have none of them, and I have lost hundreds by fighting, principally of the black bees. Eventually the blacks settled a short distance away, and a few Ligurians with them, but they have since 'turned 'em out.'

My reason for writing is, that I have always understood two swarms issuing at same time would unite, but I found, to my cost in stings, they don't always. These Ligurians are, as a rule, very quiet, but seemed turned to furies when the others came near, and as I was just about hiving them, they attacked me as well, face and hands. Perhaps others will give their experiences as to swarms uniting.

I have read that queens are not much use after second year. The black queen in question here is now in her fourth season, and none other of my queens fill frames so compactly as she does. Fancy swarming the second time in one season!—George Dorbyn, *Snettisham, July 1st.*

THE DIFFICULTIES OF BEGINNERS.

[2225.] Some of the difficulties of beginners are occasioned by a bad season, such as was experienced during the year 1888. Of these I need not treat at present, hoping that such a season will not soon again be encountered.

There are, however, difficulties common to all beginners, a few of which I shall mention, together with what I consider to be the appropriate remedies. A beginner's difficulties generally arise from his want of knowledge and experience of the habits and requirements of bees. He purchases or receives from a friend a present of a swarm, has them put into his hive, and then leaves them to themselves. He knows nothing of the management of bees, has read nothing about them, and the few vague ideas his mind contains on the subject may be altogether wrong and mistaken. Next to practical experience, reading bee literature is most necessary for a successful bee-keeper. The beginner should obtain such books as *Cowan's Bee-keeper's Guide Book* or *Modern Bee-keeping*, and, if possible, should read regularly some periodical such as the *British Bee Journal* or *Bee Record*. He should also try to become acquainted with some skilled bee-keeper, and secure a few practical lessons on the subject. He should also join his county association. He will thus become acquainted with many persons who are familiar with both the theory and practice of bee-culture, and will receive many useful hints, as well as form pleasant acquaintances.

If the swarm received is an early and strong one, and the season good, all that will be necessary will be to feed them for a few days until they are fairly established. After that they will be able to take care of themselves, and will only need fresh combs, sections, &c., to be sup-

plied to them as required. But if the swarm be a weak or late one, then the beginner will certainly have trouble with it. The remedy in this case is careful and liberal feeding. The bees will thus be encouraged to draw out the foundation and make fresh combs, and the queen will be stimulated to great activity in laying eggs. The common round tin feeder, or any of the other rapid feeders in the market will be suitable for this.

Sometimes another difficulty will confront the beginner when he is feeding, viz., robbing. Neighbouring bees will scent the syrup, and will enter the hive and rob it. Fighting and loss of life will occur. The signs of this are, bees seen fighting at the entrance, strangers flying round and trying to steal in, and the home bees resisting. The remedy for robbing is to contract the entrance to about one bee-space. This will probably get rid of the difficulty.

In the autumn wasps may prove troublesome. The same remedy as applied to the robbing bees will prevent them from working much mischief. I would urge upon beginners that the one remedy for both robbing and wasps is strong colonies, and to be strong bees must always be liberally provided with food.

Sometimes wintering bees is a difficulty. If the bees are not well wintered there can be no success or pleasure or profit in bee-keeping. The small, starved colony that just manages to survive the winter, will be a prey to every enemy, and a source of annoyance and disappointment to its possessor. A well wintered hive means with a good season prosperity, increase, and profit. The beginner should examine his hive in August to see if it has sufficient stores. To winter successfully there ought to be at least twenty pounds of well-sealed honey. If there is this quantity, then all that is necessary is to contract the hive to about eight frames, removing any others out of the hive. If there is scarcity of supplies, feed up with syrup till enough is stored and sealed. Then fill up the space behind the dummy with chaff or cut paper or dry beech leaves. Over the quilt on the top of the frames spread plenty of warm covering. You can scarcely make your hive too warm. Cold is the great enemy you have to fear, and the cause of dysentery and almost all diseases. Having packed them up warmly and securely, leave them for the winter, and do not examine or touch them until the spring. Beginners often make a great mistake in feeding too late in the autumn, or even during the winter. This is most injurious, and may be fatal to the stock.

Another difficulty is the management of the hive in the spring. About the beginning of March, if the weather be fine, and the bees flying freely, they ought again to be fed with syrup. This is called stimulative feeding, and should be continued until the honey flow begins. The colony will then increase rapidly. The frames removed in the autumn should now be restored one by one as required, and a strong colony built up to take advantage of the honey flow. Care must be taken not to overfeed in the spring. Only sufficient food should be given to stimulate the bees. Of course, more will have to be given if there appears to be a scarcity of food in the hive.

The whole secret of success in bee-keeping is to have strong colonies at the beginning of the honey flow. In the North of Ireland this only lasts for a few weeks, and if the bees are not strong enough and numerous enough to take advantage of it there will be no profit during the season.

Some beginners find a difficulty in manipulating the bees. The use of a smoker, or, what is better, a cloth dipped in a weak solution of carbolic acid and water, and spread over the frames, will render the bees quiet and gentle. With a veil over his face, and these helps, the beginner will soon acquire confidence and skill in manipulation.

In conclusion, let not the beginner be discouraged by the difficulties he meets with. A little patience and perseverance will overcome them all. Let him take an intelligent interest in his bees, read about them, study their habits, and cultivate the society of others like-minded with himself, and bee-keeping will soon have a great charm and attraction for him. With a prosperous season in 1889 past difficulties and disappointments will be forgotten, practical skill and experience will be obtained, and success, pleasure, and profit will crown the beginner's efforts at bee-keeping.—Robert Barron, *The Manse, Whitehouse.* (*Ulster Bee-keepers' Annual Report.*)

NOTES FROM CUMBERLAND.

[2226.] At last the hopes of our energetic bee-friends in this district are being realised, and the losses sustained in the past season are almost forgotten. From careful inquiry I have estimated that nearly two thirds of the stocks *did not survive* the winter. This loss was not confined to straw skeps, but in many cases to bar-frame hives, where the habit has been to take away the surplus honey late in the season, leaving the chance of artificial food to supply the wants of the bees irrespective of weather.

We have all classes of bee-keepers in Cumberland, from the most ancient and superstitious to the most advanced, and you need hardly wonder that there are some who think the *Bee Journal* too common reading for their ideas. I hope in my next to touch upon some of these characters, as well as those who by carefulness and intelligence are now reaping splendid harvests from their hives.

Already an average good honey crop has been secured varying from twenty to sixty pounds per hive, and still pasturage is abundant and should further augment the stores.—E. McNally, *Harrington.*

WASPS IN BAR-FRAME HIVE.

[2227.] There is very little alteration in the size of the nest this week, probably owing to the fact of our moving the hive in which it is built last week. Its measurements are: length $2\frac{3}{4}$ in., width $2\frac{1}{4}$ in., size of entrance (which looks remarkably small) $\frac{7}{4} \times \frac{1}{4}$ of an inch. There is another dome built down to the depth of $1\frac{5}{4}$ in. on one side of the nest only. I am sorry we had to move the hive, but the location and condition of our other hives made it absolutely necessary.—C. C. Moore, *Altrincham, July 8th.*

SECTION STARTERS.

[2228.] The bent spoon, as described in last *Journal*, is much the nicest thing to use for fixing starters in sections, but not by heating the spoon over a lamp, which would blacken it, and be rather dangerous also. I have a very small spirit-lamp and stand, with a little saucepan above it, all made of tin. The saucepan is filled about one third with hot water, then the small jar of wax, which has just been melted in the oven, is sunk in the saucepan, the spirit-lamp set alight, the folded spoon dipped into the wax, and holding the starter in the section with finger and thumb, drop three or four drops of the melted wax close to the upper end of it. Let the wax run down, and wax the other side in the same way. If the water boils too fast, I substitute an ordinary night-light, removing the spirit-lamp. It is also more economical. My little tin saucepan is $3\frac{1}{2}$ in. in diameter, and about the same in depth.

I think dealers in bee-furniture might supply the above little apparatus complete, with spirit-lamp, little jar, bent spoon, and one night-light, for a shilling, and it would be a great convenience to many, everything being made of tin, except, of course, the night-light. I bought mine in Germany. I think it cost 10*d.*

I don't care for the wax-smelter. Its spout is not properly constructed; its lower lip ought to project as a teapot's spout does. It would then be easier to drop the wax exactly where one wanted it. As it is I find it rather messy, the melted wax dropping about when I put the smelter down instead of running back into it. My starters are ½ in. deep, and full width of section.—BEESWING.

CARNIOLAN BEES.

[2229.] There were some remarks lately about these bees, and I must corroborate what is mentioned, and so far as I am concerned they are nothing less than a nuisance owing to the way they swarm. I got a nucleus last year from a good source, a well-known party in the *B. B. J.*, and I now wish I had let them alone. Let me give you the result. First swarm came off about a month ago. I then changed stock to a new stand, and put swarm on the old one. Second swarm came out of the old stock about a fortnight after, and up to the present the first swarm has thrown three swarms, good sized ones too, and I cannot get them to work on the sections, though I had them on all the swarming time. My hives are all standards. What is to be done with them? No doubt they are good breeders, but what good is that if it is honey you want and not bees? Up to the present I find no bees working as well in the sections as they ought and have done other years. I wish others would give their experience of the Carniolans.—H. J.

A FREAK OF BEES.

[2230.] The following freak on the part of a hive of bees is unprecedented in my experience, and I shall be interested to know if any of your correspondents can give a parallel instance and suggest a reason for their behaviour.

On June 12th I hived a strong swarm in a Stewarton, from which, after having nearly filled it with comb containing abundance of brood eggs and nectar, they issued on the 22nd, leaving only a few bees and no queen-cell. Not being able to discover at the time from which hive this swarm had come, as I never even thought of looking at the one in question, I treated it as a stray swarm, and joined it to a queenless stock. There was no fighting, but, opening it six hours after I found the queen 'balled,' so having in the meantime ascertained the facts I put her back into the hive she had left in the morning, where she now reigns over a greatly diminished colony.—B.

Echoes from the Hives.

East Grinstead, July 1st.—Taken my forty-first section from best hive to-day, all very finely finished, some completed in a fortnight. Fifteen more all but ready on same hive. This hive has swarmed, and half the frames taken for a nucleus. The great trouble here (a thing unusual with me) has been the excessive swarming.

July 6th.—Swarming still a great trouble. Took my fifty-first one-pound section from best hive on July 4th. This is not quite so good as I generally get in quite a first-rate year such as this evidently is.—EAST GRINSTEAD.

Swineshead, Lincolnshire, July 8th.—Knowing the principal bee-keepers in the districts from the Heath to the Wolds, and my public duties keeping me 'in touch' with most of them, I can testify that the past winter has been the most fatal on record. Those that survived have done well; several skeppists have increased threefold; the white clover, especially on the roadsides, has been abundant, and the limes are in full bloom, but sadly need a small shower to cause them to secrete a good supply of nectar. Straw hives will be clogged with honey, but bar-frames need emptying, and, should dry weather continue, feeding should at once be resorted to to encourage the queen to continue laying to keep up breeding, for the population to withstand spring dwindling—an important affair. Sugar being dearer will add to the expense, which should not be grudged; also, now is the time to requeen.—R. THORPE.

Surbiton, July 8th.—My hives stand on the roof of the kitchen, about 14 feet from the ground. On the 14th of May one stock—Ligurians—swarmed. I moved the stock to a short distance, hived the swarm on ten frames 1¼ inches apart only, full sheets of foundation alternating with starters, at the same time removing the supers, which had already been put on, from the stock to the swarm. This swarm threw a maiden swarm on the 4th current, although it had sixty-three 1-lb. sections in supers on at the time. With a view of returning, I took off forty-two sealed sections, and opened the hive to cut out queen-cells. In the centre of the brood-nest I found one frame *just as it was put in with about a 2-inch starter;* nothing had been added to it, except a few cells just in the middle, to which were attached two queen-cells, one sealed and the other not. These I cut out, replaced twenty-one (all nearly filled) out of the sixty-three sections, put on twenty-four empty fresh ones, and returned the swarm. The twenty-one sections are now ready to come off, and the bees are working in the twenty-four. The original stock, although removed to a fresh stand, threw a second swarm on the 22nd of May; this I returned. This hive now has sixty-seven sections on it, forty-two of which are nearly or quite fit for removal. The three stocks I owned last autumn all came through the winter safely; two of them were wintered as Simmins advises for parallel frames—viz., with the quilt turned back from the top of the front frame, to allow a current of air to pass from the mouth of the hives right up to the roof.—R. J. SANKEY.

Honey Cott, Weston, Leamington, July 8th.—Since my last we have had glorious weather, bees swarming, supers filling, honey rolling in, to be again slung out with the extractor, or taken off in sections. There is no mistake about it, excluder-zinc to prevent brace-combs for me, though in many cases I do not let it cover the whole of the frames, but leave an inch or so at the sides and ends, so that if the bees cannot get through easily, they find their way at the sides and ends. Even my old ⅝ in. zinc round I have used in this way this year with good effect, as well as the Abbott pattern, also the Raynor; and where I have run short of these, I have put on pieces of tin, about 10 in. by 14 in., which have answered just as well. Oh, the comfort of having to take off a crate of sections without those abominable brace-combs! I have had to revert back to the old advice plan (which I spoke rather against in the query department the other week) of placing the empty crates underneath the full ones. I found I must do it, especially where stocks had not swarmed. Am pleased to see that the *Bee Journal* has been reduced to 1*d.*, though I could not do without it even if it were 6*d.* per number, as it was for years, and which I began with the very first number.—JOHN WALTON.

NOTICES TO CORRESPONDENTS & INQUIRERS.

QUESTION.—Seeing that you are ever ready to help those that are willing to help themselves as regards bee-keeping, I venture to ask a few questions and to state my grievances. (1.) How am I to get a swarm, particularly from one hive that I would like a swarm from, knowing that this sort of bee is proved, the time I have had them, that is, three years, to be a good breeder and a capital honey maker? I got her exactly as a swarm three years now. Last year being bad I did not expect much from them, but this year being good I expect much, especially a swarm, and I see no signs as yet. I

may state that the hive holds fourteen frames, but I followed your instruction as to wintering, that was to remove all empty bars, and to contract the next to six bars. Since the breeding has commenced in rapidity, and a good flow of nectar, I have added bar and bar until I have the full fourteen frames in now, and such a mass of bees I never saw, and as to weight, it takes one man at each handle to lift it; without a doubt it is the heaviest in this county. Would it be wise on my part to make an artificial swarm? I have no practical knowledge whatever, only an observer and weekly reader of your valuable *Journal*. Do you think that the time is still at hand for a swarm yet? as, according to your instructions weekly, they say that it does not matter how much addition you make to bees when they get the swarming fever, there is no stopping them. I really believe that to be true, as I witnessed that last summer with a friend of mine here. To let you understand the locality where and how my bees stand, I will thus relate: I have them under a wood erection facing south-west, so we might say that they get the sun nearly all day, or the best part of the day. I have very little in before the bees, through it being only a new garden taken from a large field. I have planted a few fruit trees, &c., to the sides of them to be useful in case of swarming. The bees have a clear flight of acres over acres of hay and clover. I sowed mustard about six yards from the hives, but never a bee have I seen on it; also other bee-plants, and they never go near, just seem to fly right out. (2.) Have I done right by placing an empty hive near to the front of them by four yards, and another away thirty yards, for fear a swarm might come off when I am not there, and it would be a chance for her to take possession of one or the other hives? I might say that if it comes off it will be within only a few moments, as I travel to and from the house and hive all day long. (3.) Knowing according to reading that the queens become useless after three years old, and perhaps die, how will I be placed if this hive of bees does not swarm this summer? Would or should I get another queen and introduce into this hive to save the colony? Sir, if you can give me any advice in your next *Journal* you will greatly oblige me, seeing how anxious I am to get under way in bee-keeping. Let me also say that swarms are coming off beautifully in straw skeps in the immediate district here after a twenty-five or thirty per cent of deaths in winter. Bar-frame hives only few swarms, honey in hives plentiful, I should say. Heather must be good this season.—CARBON.

REPLY.—1. *Artificial Swarming.*—You had better make an artificial swarm. This can be done on any day when drones are flying freely. Remove five frames containing brood, and one of honey from the hive and shake the bees off; place these in a new hive. Then move the old hive to a fresh stand, and place new one in the position so vacated. The middle of the day is the time to do this.—2. *Empty hive near old stock.*—The bees if they swarm might go into the empty hive, and, what is most likely, might not.—3. *Old Queen.*—At three years old she ought to be superseded.

H. BALL.—1. *Nucleus Hive.*—The nucleus being overcrowded was the reason of bees being outside division boards. You had better increase the number of frames to that of a stock rather than put supers on. 2. *Transferring.*—For a novice three weeks after swarming is the best time. Unless the combs are fairly new and straight they are not worth transferring. If old drive the bees and place parent hive over feed-hole in a frame hive fitted with sheets of foundation, placing a piece of excluder zinc over the hole before doing so, then run bees in at entrance of frame hive; they will draw out the combs and rear brood, while the brood in the skep will all hatch out in three weeks. The skep can then be removed.

BARNES NOVICE.—*Increasing Stock.*—Natural increase, where the capacity of the stock hive is limited to about 1500 cubic inches, is the quickest and safest. It is unwise to artificially increase the number of colonies when, by so doing, you weaken all by increasing beyond the natural limits, as in a season like the present they have full scope for naturally increasing. Read the several manuals now published on bee-keeping; they will give you more information on such an inexhaustible subject than we can spare space for.

WM. MITCHELL.—*Foundation Making.*—Wax purchased at 1*s.* per lb. can be made into foundation at 1*s.* 6*d.* with a fair profit to the manufacturer, notwithstanding your *theory* that it cannot and that the small purchaser pays the profit which ought to be paid by the larger consumer. To prove this, if you will forward a few pounds of wax to any manufacturer he will make it into foundation for 6*d.* each pound. Would he do so if he lost over it? or do you think him so philanthropic as to work for others' benefit? We do not.

BEESWING.—*Queen-cells.*—We have a cell very similar to yours which was built in a queenless hive having a fertile worker. When from any cause the bees build a queen-cell around a drone grub the cell is of abnormal proportions, and so far there is no recorded instance of such a grub hatching out. It evidently dies of repletion.

H. C. HOPKINS.—*Extracted Honey.*—The mild amber-coloured honey is considered the finest colour, but some judges incline to the palest samples. Honey shown in tall bottles of small diameter looks best, as any slight cloudiness is not so apparent. Extract some week or so at least before the show; let it stand two or three days before bottling. If any air bubbles show set the bottles in warm water for an hour or two; this will brighten the honey. Remove any frothy appearance on top, cork up, and win the prize.

W. H. A.—*Piping of Queens.*—We know of no animal or insect endowed with the power of emitting sounds but what has the power also of varying it, and we infer the queen bee has the same privilege; certainly the workers have.

ONE IN DOUBT.—*Heather.*—Specimen sent is not the true purple heather. The stocks being equally strong, we should prefer to take the Carniolans, but be sure they are not stinted for room. It is not the expanse of heather, but the weather that decides how many stocks a given acreage will employ.

APIS.—*Dead Brood.*—It is possible you have an old queen, who is unable to bestow sufficient vitality on her progeny. If you have any doubts on this point, re-queen. You do not say if the dead bees are very frequent. Bees, like humans, sometimes die young.

SHOWS TO COME.

BEES, HIVES, HONEY, ETC.

July 24th and 25th.—Lincolnshire Agricultural Society at Louth. Entries close July 9th. Secretary, Stephen Upton, St. Benedict's Square, Lincoln.

July 31st and August 1st.—Glamorganshire General Agricultural Society at Treorky, Rhondda Valley. Secretary, D. P. Davies, Commercial Street, Aberdare.

August 6th, 7th, and 8th.—Yorkshire Agricultural Society, at Hull. Entries close June 29th. Secretary, Marshall Stevenson, York.

NOTTS ASSOCIATION.

July 24.—Sutton-in-Ashfield.
July 25.—Southwell.
July 30.—Farnsfield.
Aug. 5.—Beeston.
Aug. 15.—Woodborough and Epperstone.
Sept. 5.—Greasley and Selston.

Hon. Sec., A. G. PUGH, *Mona Street, Beeston.*

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Editorial, Notices, &c.

BRITISH BEE-KEEPERS' ASSOCIATION.

QUARTERLY MEETING AND CONVERSAZIONE.

The next Quarterly Conversazione will be held at 105 Jermyn Street, on Wednesday, July 24th, at six o'clock. Members desirous of introducing subjects for discussion, or to submit new, improved, or interesting appliances, are requested to communicate with the Secretary not later than Monday, the 22nd inst. County representatives will meet at 149 Regent Street, at 3.30 o'clock.

JOHN HUCKLE, *Secretary.*

Kings Langley, July 15th.

MR. HENRY YATES, OF GRANTHAM.

It is with profound grief that we have received the following sad news respecting the death of Mr. H. Yates, who so recently performed the duties of judge at the Royal Show, Windsor:—

'THE DEATH OF A GRANTHAM GENTLEMAN AT HORSFORTH.—Mr. Taylor, district coroner, held an inquest at Horsforth on Thursday relative to the death of Mr. Henry Yates (49) of Grantham, a steam plough manufacturer, whose dead body was found in Newlay Wood by a boy on Wednesday evening. The deceased gentleman had been staying with his wife at the house of Mr. Daniels, Fern Bank, Newlay, having been recommended by his medical adviser at Grantham to seek change of air for a short time, as he had been suffering from mental depression. He was visited only on Tuesday by Dr. Nunneley, of Leeds. On Wednesday evening he went out with the intention of sending a telegram from the post-office, and was not afterwards seen alive. He was found in a small plantation near Newlaithes Hall with his throat cut, and a clasp-knife underneath him covered with blood.—A verdict of "Suicide whilst of unsound mind" was returned.'

Mr. R. A. H. Grimshaw, in communicating the above, writes:—

'It is with great pain I have to inform you of the death of *yet another* eminent bee-keeper—Mr. H. Yates, of Grantham. It was only a few days ago you said you had pleasure in recording his entry into the rank of first-class judges, he having acted in that capacity at the Royal Show at Windsor just a fortnight ago. He then came to stay with a neighbour of mine, Mr. W. Daniels, for change of air and scene, and whilst he was enjoying the society of his relatives, was overtaken by a fit of mental depression, which has terminated so disastrously.

'We thus lose a straightforward, sterling man, whose services as judge for the B.B.K.A. were as highly valued as were the great expectations we had of him in future years.'

A VISIT TO AN 'OLD BEE-MASTER.'

Among the many attractions that belong to bees and bee-keeping, one of the most important, as it seems to me, is the pleasure of meeting from time to time many able and excellent persons devoted to the craft, with whom after a while acquaintance ripens into friendship. At two shows held within the last two years I had the good fortune to meet a bee-master who on each occasion was the happy winner of a first prize. Finding that he did not live at the other end of England, I accepted an invitation to visit him. Some account of his apiary may interest your readers.

As I mounted the hill on which his house stands, I could not but recall what I once read, I believe, in a biography of George Stephenson, the great engineer. Of him it is recorded that he took up bee-keeping when advanced in life, but found that he could not obtain satisfactory results, because, as he thought, he lived on a hill. The bees, he said, could not bring their burdens up the hill from the valley below. But in those days bar-frame hives were not even a dream of the future! Like George Stephenson, my friend was once an engineer, and has retired, as he did, to the top of a hill to enjoy his well-earned leisure. But he has not found, and does not find, bee-keeping unproductive in any way. From the top of his house he tells me that he can survey fifty acres thickly dotted with clover-blossom, and the beautiful sections, as well as the immense amount of clear and light-coloured honey which he has already secured, prove that his bees are not slow in gathering the golden harvest. As soon as I entered the garden, I could not but be struck with the most promising display of fruit on the apple and pear-trees. Here was another proof, if one were wanted, of the vast importance of bees in the fertilisation of fruit. In a previous number of the *B.B.J.* I mentioned the fact that although apples were scarce last year, in my garden I had an abundant supply, thanks chiefly to the vagrant swarms that occupy the eaves of my house. Again, this year, when I am told by others that there are no apples, my trees are well covered, and there is every prospect of a good crop; and I would press upon all who lecture in public the advisability of urging this point constantly as one of great importance, about which people generally know very little.

I found many of the hives placed among the bushes or sheltered under the trees. My friend's experience is that the bees often do better when shaded than when

exposed to the full glare of the sun. As he was expressing his approval of shade and an eastern aspect in summer, I could not but recall the advice given us by Virgil—

'Palmaque vestibulum aut ingens oleaster inumbret.'

(And let a palm or huge wild olive tree shade the entrance.)

His remark respecting the aspect reminded me of another friend who has built a sort of shed open on all sides with his apparatus in the centre, and the hives facing in all directions. The bee-keeper to whom I refer does not find much difference occasioned by the aspect. The 'Old Bee-Master' prefers the eastern aspect in a hot summer, as the bees are able to work longer hours.

Many years have passed since the 'Old Bee-Master' began to take an interest in bees, yet his boast is that he never bought a swarm and never lost a hive! Presented with a swarm by a very dear friend, he has carefully kept the original race and their descendants, yet now he winters from twenty to twenty-five stocks! Not that he is altogether averse to the introduction of any fresh blood. He never drives the bees of outsiders in order to add them to his own apiary, for he has a sacred horror of foul brood. New queens, however, come from Frank Benton and others. His method of introducing a queen is very simple. Having previously removed the old queen, he places the new comer in a cage over the feed-hole and allows her, after twenty-four hours, to walk in. He does not remember ever to have lost a queen. His method of raising new queens is also interesting. He is very particular to breed only from his strongest and best stock. When this has swarmed he cuts out queen-cells according to the number in the hive, and the number of queens wanted. These cells he places in a box two and a half inches square with a wire gauze side and a means of feeding the queens when hatched. This box or cage is placed between the frames of a hive until the queens are hatched; then their ladyships are transferred to nuclei and new hives formed. These nuclei are, I observed, usually under the cover of, and in close proximity to, a full-sized hive, so that the warmth of the strong hive assists the weak one.

The 'Old Bee Master's' success in securing large harvests of honey is such that he is fully entitled to the title which I have ventured to give him. He tells me that his average return per hive last year (the black year 1888) was 56 lbs.! On this July 3rd I find that one of his hives has given him 92 lbs. in sections, and that a day or two back he extracted 80 lbs. from another of his hives! But he does not consider the present year a very good one. In a former year he took 194 lbs. in sections from one hive, and 230 lbs. in all from another single hive. He has frequently obtained 100 lbs. per hive throughout his apiary. This he considers he could not secure unless he constantly re-queened his hives. He is a great believer in the Cowan theory of keeping a queen only as long as she is 'in full profit.' His hives have all of them fourteen frames, and he considers that he cannot do with a smaller number. In winter he reduces them to eight, and stimulates in spring by adding frames full of honey. He is not at all fond of syrup feeding, and I am inclined to think does not feed in this way at all, as a rule. His method of doubling is as follows:—When a hive of fourteen frames is full of brood and bees, he places another hive of fourteen frames over it, with the Raynor zinc excluder between. The upper hive is made up of surplus combs, carefully kept in stock for use when required; and some of the hives at the time of my visit had a third storey of fourteen frames, forty-two frames in all! These frames, by the bye, are the Woodbury, not the Association frames, so that the size of the hives is necessarily larger. He regrets that he did not, in bygone years, adopt the Association frame; but as he makes all his own things, even his extractor, he is not so dependent as some of us are on carpenters and manufacturers.

He is most particular as to the quality of his extracted honey. He will not suffer a particle of brood to enter the extractor, nor will he allow a carbolic cloth to be placed on a hive from which he intends to extract. He is a strong believer in wired foundation as necessary when combs are to be placed in the extractor. The foundation in all his frames is wired across (to use his own words) 'the diagonal of the square.' His bee-house, erected with his own hands, is a proof of his skill as well as of his industry. Here is accommodation for twenty-five hives crowded into a very small space, for the premises are not large. The torrents of bees which flow towards the clover fields and return laden with their golden treasures, is a sight sufficient to gladden the heart of any genuine bee-lover. He is decidedly of opinion that all hives should have alighting-boards reaching to the ground, to assist the overloaded and weary bee. Most of his hives are two feet three inches square and two feet six inches high, with 'chaff walls,' as recommended by the Editor. He has no difficulty in disposing of his honey, because he regularly produces a large quantity of good quality, and the honey merchants can rely upon him. All his sections for this year are sold, and he expects to sell all his extracted honey before Christmas. He never sells his swarms; they are too valuable to be sold for 10*s.* or 15*s.* His opinion of the pure Ligurians is that they dwindle in the spring, but that the first cross with the pure English bee is the best for productiveness. The Carniolans are the quietest of all; he and I put our hands into a large hive of Carniolans from which honey had been extracted the day before, and no attempt was made to sting us. The English bee, he considers, finishes sections better than any other bee, though he thinks that the sections are not well finished this year. He has great faith in camphor, and in uniting stocks he prefers to put a piece of camphor into the flight-hole of each hive over night, and on the following day to unite the bees rather than to drench them at all with scented syrup.

One feature of the apiary is the number of neatly made cushions to be seen on all sides. The 'Old Bee-Master' is an evident believer in warmth, but I have a shrewd idea that the 'gude wife' lends a helping hand in this as in other matters. His sections for some years have been cut at the top, so as to readily admit the foundation, and thus to do away with the Parker or any machine. I may, perhaps, be permitted to add that the 'Old Bee-Master' has been a teetotaller for forty-one years, yet he looks as vigorous as many men much his junior.

'Jam senior, sed cruda Deo viridisque senectus.'

(Advanced in years, but the old age of a God is fresh and green.)

Should any one discover the happy abode which I was privileged to visit, and desire to discuss among other things the never-ending teetotal question, my friend will endeavour to convince him that abstainers live longer lives than moderate drinkers, and that statistics clearly prove his case! This is a problem upon which I do not dare to enter.

My notes of this interesting visit are almost exhausted. I ought, however, to add, in justice to his skill, that he has no lime-trees near him to increase his stores. As a rule he does not extract after July 14, so the bees have ample time to lay in a good winter supply. He admits that he finds the difficulty of discovering a queen in one of his teeming hives to be a serious one, and sometimes he is almost baffled. I need scarcely say that he has no other pressing occupations. Those who have other strong claims upon their time find that half-a-dozen or a dozen hives are sufficient to satisfy their ambition, and to fill up all the time they are able to spare.—EDWARD BARTRUM, D.D., *Wakes Colne Rectory, Essex.*

P.S.—In a garden-orchard (after a plan recommended by Mr. Francis Rivers), at present full of fruit trees,

and in due time, I hope, to be full of fruit, I propose to place hives at some distance apart. The garden, I am told, is likely to attract more attention than is desirable, and I am convinced that a few hives (say of Syrians, or some other equally sweet-tempered race) will prove as good protectors and preservers as the county police. —E. B.

USEFUL HINTS.

Weather.—Though the true Briton is proverbially privileged to grumble at the variations of our climate, the general conditions of the season have been so favourable that we feel the grumbler must be like Othello, and find 'his occupation gone.' Certainly some districts would have benefited by a gentle rain between the 7th June and the 13th July, more especially where limes are largely depended upon for the honey crop. They are now practically over, and, except in districts where late bloom is to be depended upon, we may begin to total up the harvest. Judging from general reports we should think it will be found a fairly good season, and considering the very discouraging seasons of the last two years, we should all feel that patience brings its own reward.

Supers.—As fast as these are completed they should be removed, otherwise our busy friends will soon soil them, especially if we get a scourge of honey-dew. Instead of removing the sections one at a time, it is best to remove the top rack bodily as recommended by our departed guide and Mentor, the Rev. G. Raynor, on page 303 of the volume for 1886, which we repeat for the benefit of new subscribers:—

'Take two ounces of ordinary carbolic acid, mix it in a quart of warm water, and in this solution steep a piece of calico sufficiently large to cover the top of the section-case. Having wrung out the cloth as dry as possible, about noon on a fine day remove the covering of the section-case and apply the cloth. The few bees at home will beat a hasty retreat below, and the case entire may be removed into an out-house or spare room, where the sections may be separated and stored. In case a few bees are found, brush them off the sections with a feather through the window or door. This plan is far better than endeavouring to remove the sections one by one from the case as it stands upon the hive, in which attempt sundry of our acquaintances have been stung. A shady nook will do as well as an outhouse or room.'

Another advantage is that this plan does not give the bees time to tear open the cells, which they frequently will do when an attempt is made to remove sections singly.

Storing Sections.—Sections when removed from the hives should never, no, never, be stored in a cold place or one at all inclined to damp. The ideal store-room would be one where the temperature was about 70°. Let each be carefully wrapped in paper and set *right way* up. Should one weep badly it will not so easily spoil several others. Besides, dust, spiders, &c., will not get to them then. All propolis should be removed before storing.

Extracting.—Honey as soon as sealed should be extracted, otherwise considerable damage will be done to the combs, as some plants produce honey which soon becomes too firm to throw out easily. If any difficulty is experienced it is well to about half extract one side, then reverse the comb and finish the second side, and again reverse and finish the first side. This, to old hands, may appear a messy way, and in cases where none but old combs are being extracted such care may not be necessary, but the beginner is in a far different position. He has probably all new combs, the building of which he has watched with probably more attention than has been conducive to the comfort and well-being of the bees. Perhaps he has failed to get sections, but he has honey in the frames, and he is anxious to bestow some among his friends just to show them some of the sweets of bee-keeping—he has been unable many times to hide the discomforts from them—but, alas! in extracting the honey he extracts comb and all, much to the detriment of his honey and his temper. Do not turn your extractor at express speed.

Feeding.—In districts where there is any dearth of honey now the limes are over, all nuclei and late artificial swarms should be fed gently, to help them build up for the winter.

Re-queening.—When necessary, this should be arranged for without delay, either by home-rearing, exchange before fertilisation, or purchase. Last autumn was so disastrous to the late-reared queens that it should be a warning.

Wasps.—Although conspicuous by their absence this season, it will be well to set bottles about with a little beer and sugar in each. It is astonishing the quantity which may be destroyed in this way.

Heather Honey.—Our favoured *confrères* will now be busy arranging for the trip to the moors. Use plenty of straw as a cushion in the bottom of the conveyance, also between first and second tier of hives give plenty of ventilation, have everything securely fixed, and mind that there is a firm hand at the horses' head during both loading and unloading. Shade your hives for the first day or two after arrival, bunches of fern will do nicely, and keep your hives well apart, it will possibly prevent fighting.

REVIEW OF GERMAN AND FRENCH BEE JOURNALS.

By J. Dennler, of Enzheim, Alsace-Lorraine.

(*Continued from p. 304.*)

f. '*Deutsche illustrierte Bienenzeitung.*' *By C. J. H. Gravenhorst.*—On page 273 we read as follows, under the heading of '*An Act of Parliament for the Protection of Bees:*'—The Bill introduced by Letocha for the protection of bees was read a first time in a full sitting of the House of Deputies at Berlin on the 3rd April last. In an excellent speech Counsellor Letocha proved the necessity for passing a law for the protection and further development of bee-keeping, applied, in the first instance, to Prussia only. Although it is a fact that legal protection to bee-keepers is required more in some of the other German States than in Prussia, it is satisfactory to see an attempt made by the greatest German States to get a law passed that is so much needed. The unquestionable benefit to bee-keepers of such an Act would very soon become apparent, and then the example set by Prussia would doubtless be followed by the minor German States. As things stand at present, the course that has been taken is the one which was clearly indicated as the correct way of solving the difficulty.

g. '*Neuer Schweizer Bienenfreund.*' *Editor, M. U. Studer.*—No. 6 of this Journal contains the following excellent advice with regard to moving bees:—'The best months for moving parent hives, if the distance be more than half mile, appear to be April-May and September-October. During the actual winter season bees should not be conveyed any distance, as this might easily disturb them, and cause them to soil their combs, if they had not previously been out of the hive to cleanse themselves thoroughly. Besides, the effect of the cold would render the wax less compact, and the combs are then in danger of becoming detached and falling on the floor of the hive. The removal of colonies on a cart or waggon has the same effect on the bees as driving, all rushing towards the top of the hive. In this case it is necessary to arrange for proper ventilation there, by fixing a piece of wire cloth, or some other contrivance.'

h. '*Bienenwirthschaftliches Centralblatt,*' *No.* 10.—The *Editor, Mr. Lehzen,* gives an account of a revolting act

of cruelty. Some three weeks ago, Mr. Behrens, a bee-keeper of Winsen on the Aller, had 155 colonies of bees destroyed by brimstone, evidently done out of revenge. The perpetrator of this wicked deed still remains unknown. The loss sustained by Mr. Behrens amounts to at least 1860 mark (93*l.*). The committee of the Central Union of Bee-keepers consider they are acting in accordance with the wishes of all Branch Associations in appealing to the Presidents or Chairmen of those Societies to grant a suitable contribution from the funds in their hands towards compensating Mr. Behrens for the loss he has sustained, and to forward the same as early as possible to the editor of this journal, Mr. Lehzen, of Hanover, who will acknowledge receipt in the columns of his journal, and remit the money promptly to Mr. Behrens. In a footnote Mr. Lehzen adds: 'We are pleased to be able to state that a sum of 1400 mark (70*l.*) has already been remitted to Mr. Behrens, and therefore only 460 mark (23*l.*) remain to be subscribed. We hope the villain will understand that bee-keepers are a united body, ready to assist one another.'

i. '*L'Auxiliaire de l'Apiculteur*,' *Editor, Mons. M. J. B. Leriche*, in its May number, refers to a project to introduce a Standard frame of uniform size for the whole of France. After examining a dozen frames or so of different dimensions, some greater in width than in height, others greater in height than in width, the average height was found to be 298 m.m., and the average width 292 m.m. From these data it is proposed to adopt a square frame, 30 m. by 30 m. ($11\frac{4}{5} \times 11\frac{4}{5}$ in.) inside measurement. Such frame would permit of a cube shape to be given to the hives, and would enable those who are in favour of maintaining a high temperature in the hive, as well as those who prefer a lower temperature, to arrange the combs either perpendicularly or parallel to the entrance of the hive, to suit their fancy. For those who prefer spacious hives it would be easy to enlarge the dimensions, either vertically by increasing the height, or horizontally by doubling the cube.

k. '*Le Bulletin de la Société d'Apiculture de la Somme*, in its number for May-June continues the controversy on the ridiculous theories of Mons. Ulivi. This is the only journal among the numerous French and German publications on bees that places before its readers such erroneous ideas, which afterwards it takes a delight to refute. The same journal recommends the cultivation of the hybrid trefoil, or alsike, from a twofold point of view: first, as furnishing a good fodder for cattle, and, secondly, as being an excellent honey plant.

SHOWS AND ASSOCIATIONS.

THE ROYAL SHOW AT WINDSOR.

(*Continued from p.* 301.)

For useful inventions introduced since 1887, there are twenty-two entries, which would take much more space to comment upon than we have for disposal; suffice it, W. Dixon (for hive walls); the Rev. R. M. Lamb (improvement in frames); five entries each of Messrs. Meadows and Howard; three of Mr. T. B. Blow, of Welwyn, the latter being metal cases for sections, card and glass section cases, grooved sections. Mr. Howard, however, took the certificate with a section case of wood grooved all round to receive the glass.

In the honey classes we have, thanks to the beautiful and early season, to record a magnificent show of honey in all its forms, the artistic pile of Mr. W. Woodley, World's End, Newbury, being particularly conspicuous, and arresting the eye of the visitor before entering the exhibition. This well-known and always successful honey producer takes first prize for twelve sections, the gross weight of which must approximate 24 lbs.; as last year, Mr. Woodley's honey is distinguishable by its beautiful primrose capping, betraying its sainfoin origin; Miss M. L. Gayton coming second with her always well-harvested honey, of apparently perfect character. There were ten entries in this class.

When we come to the class for twelve 1-lb. sections, forty entries of very high class stuff give the judges some work to do. Again W. W. Woodley comes first; W. Debnam, Chelmsford, second; Sells & Son, Stamford, third; the Rev. R. T. Shea, Rochford, Highly Commended.

Class 90, for the best six 1-lb. sections, finds W. Woodley for the third time taking first prize; A. L. Cooper, Reading, second; Sells & Son, third. Thirty-six entries.

Class 92 is for twelve 2-lb. jars of extracted or run honey. There are thirty-eight entries. T. W. Norman, of Nacton, Ipswich, is first; Mrs. E. J. Cox, Tyfield, near Abingdon, second; Miss Gayton, again with a remarkably fine exhibit of clear, rich-looking honey, the tin foil over the corks being particularly well fixed and effective, third. The entries of J. Thorn, Baldock, and R. W. Lloyd, Badminton, were highly commended.

For heather honey there were but two entries, J. D. McNally, Springburn, Glasgow, taking the prize.

Granulated honey (class 94), six 2-lb. jars, brought eighteen competitors, G. Turner, Donegal, Ireland, taking first prize with a very good sample; J. J. Candy, Landport, second; W. Sturdy, Stony Stratford, third. Messrs. Edey & Sons, St. Neots, and R. Thorpe, Swineshead, showed some very attractive honey.

We now come to class 95, for the best exhibit of comb and extracted honey, in any form, on stages four feet by four feet, not exceeding five feet high above the table, and here W. Woodley, of World's End, Newbury, takes a silver medal and first prize with the exceptionally good show previously alluded to. The addition of several designs, in honey-comb of this year, agreeably varied the monotony of 'line upon line' of sections. A. Godman, St. Albans, took second prize with a well-arranged exhibit of honey, which was notable for being almost all *extracted*, as was the first prize for its *sections*. J. Thorn, of Ashwell, Baldock, was awarded third prize.

The next class (96) was for the best plan and design for an apiary of fifty hives, on two or more acres of land. A. Godman, of St. Albans, takes the first prize and silver medal with a large hexagonal design, in which are placed six smaller hexagons, the six sides of each of these being furnished with miniature hives looking on to flower beds supposed to contain suitable bee pasturage. J. Palmer, of Ludlow, takes second prize; W. Marshall, of Buncefield, third prize. This latter is noticeable as giving us a good representation of strawberry plants and apple-trees in full bloom.

There was no entry for the prizes offered for the best lecturing diagrams. We now come to the last class—for the most interesting and instructive exhibit of any kind connected with bee-culture. There were thirteen entries for this prize, but we are not able, as we should like, to give special mention of all which deserve it. J. D. McNally's exhibit of British bees-wax was extremely good, as was the same gentleman's comb design, 'God save Queen Victoria.' W. N. Griffin also had a useful show of articles, made from the products of the apiary. Mr. Griffin took first prize with a collection of wax and honey of various kinds; some of these dating back to 1884. G. J. Buller, Welwyn (manager to Mr. T. B. Blow), took second prize with a glass case labelled 'Bees and their Enemies.' In this case were to be seen a straw hive and hackle picturesquely arranged, on and about which were bees, workers, drones, and queen, with sparrows, tits, swallows, bee eater, red back'd shrike, fly-catcher, wax-moth, death's-head moth, humble-bee, mice, toads, &c. This is a most effective exhibit.

J. Freeman, of Welling, Kent, shows a model of Welling Church, filled with honey-comb. Two Virgilian hives—one of virgin cork, the other 'a hive woven with

the pliant osier,'—are exhibited by the Rev. F. T. Scott, Sittingbourne. W. Dixon, Leeds, sends foundation worked out into letters, '1889, God save the Queen.' G. E. Darvill, Reading, has a most effective display of about sixty different kinds of sweets made with honey.

Mention must certainly be made of a Crystal Palace super, containing 75 lbs. of honey in comb, stored through zinc excluder, by one of the stocks of bees belonging to Mr. J. M. Hooker.

The thanks of bee-keepers are due to Messrs. Sutton & Co., Reading, for a collection of decorative plants and flowers—ivies, shrubs, heaths, mignonette, white chrysanthemums—and bee flowers in abundance; to Messrs. Stuchbury of Oxford, and Wells of Maidstone, for assistance in arrangement of plants; and to the members of the Committee of the B. B. K. A. for general assistance in the Show and Bee-tents.

S. J. Baldwin kept audiences at the bee tent eagerly interested with bee-driving and lecturing, day by day, and the gloriously fine hot weather, in the magnificent Royal Park at Windsor, amidst the stately elms and historic oaks of this ancient forest, gave bee-keepers, at least, an opportunity of having a right good time of it, not the least enjoyable of which was the pleasure of meeting so many friends from afar, all equally interested in the success of our now famous pursuit.

ROYAL COUNTIES AGRICULTURAL SOCIETY.

Annual Exhibition at Horsham, Tuesday, July 9th, to Friday, July 12th.

The British Bee-keepers' Association took the management of this department, and the arrangements, which were carried out under the superintendence of Mr. J. Huckle, Secretary of the Association, were of first-class character. The shed allotted to the exhibition of hives, honey, &c., measured upwards of 50 ft. in length and 20 ft. in breadth, which was well filled by the several exhibits. Upwards of fifty entries were made in the several classes, which were tastefully arranged on similar lines to those adopted at the Windsor exhibition. A plentiful supply of plants and cut flowers were readily obtained, and added much to the effect of the exhibition. Lectures were delivered in the bee-tent at intervals by Mr. R. Green, expert of the Association. The Rev. R. Errington and Mr. Garratt acted as judges, and their awards gave general satisfaction.

In the class for observatory hives, stocked with bees and queen, there were two entries, and there were nine very good exhibits in the frame-hive classes. The comb-honey exhibits were highly satisfactory, and the exhibits of run or extracted honey was of a kind very seldom surpassed; but the best show of all was that in the class for comb and extracted honey, each exhibit being staged on sixteen superficial feet of space; indeed, those who had the opportunity of judging between the two shows expressed it as, in their opinion, a far superior class to that at the Royal Show, and this was entirely owing to the excellent bee-weather which has prevailed during the last fortnight. There were also some very good exhibits in English bees-wax. The following is the list of awards:—

Class 1.—For the best collection of hive and appliances, to be staged on space not exceeding 45 superficial feet; each article to be priced separately: Second prize, 20*s*., W. P. Meadows, Syston, Leicester.

Class 2.—For the best observatory hive, stocked with bees and queen: First prize, 20*s*., T. Overton, Horley, Sussex; second, 10*s*., A. Godman, St. Albans, Herts.

Class 3.—For the best frame-hive for general use; price not to exceed 15*s*., unpainted: First prize, 20*s*., Neighbour & Sons, 127 High Holborn; second, 10*s*., C. Redshaw, South Wigston; commended, Green & Sons, Rainham, Kent.

Class 4.—For the best frame-hive for general use; price not to exceed 10*s*. 6*d*., unpainted: First prize, 20*s*., W. P. Meadows; second, 10*s*., C. Redshaw; commended, Neighbour & Sons.

Class 5.—For the best twelve sections of comb honey, the gross weight to approximate 24 lbs.: First prize, 15*s*., Miss Gayton, Much Hadham, Herts; second, 10*s*., W. Woodley, Newbury, Berks.

Class 6.—For the best twelve sections of comb honey, the gross weight to approximate 12 lbs.: First prize, 15*s*., W. Woodley; second, 10*s*., F. H. Cudd, Chislehurst, Kent; third, 5*s*., and highly commended, A. Godman; commended, Miss Gayton.

Class 7.—For the best exhibit of run or extracted honey, in jars, not exceeding 2 lbs. each, gross weight to approximate 24 lbs.: First prize, 20*s*., Miss Gayton; second, 10*s*., W. Woodley; third, 5*s*., E. H. Hodgman, Bobbing, Kent; highly commended, H. A. Carter, Billingshurst, Sussex, and G. Alce, Groombridge, Sussex; commended, F. H. Cudd.

Class 8.—For the best exhibit of comb and extracted honey in any form, staged on 16 superficial feet of space, height not to exceed 5 ft. above the table: First prize, 40*s*., W. Woodley, who also obtained a silver medal for the exhibit most tastefully arranged in the class; second, 20*s*., A. Godman; third, 10*s*., C. T. Overton; commended, Miss Gayton.

Class 9.—Supers and fancy design in honey-comb: First prize, 20*s*, Mr. Blundell, Horley; second, 10*s*., W. Woodley.

Class 10.—For the best exhibit of English bees-wax, not less than 5 lbs. in weight, to be exhibited in pieces not exceeding 1 lb. each: First prize, 10*s*., W. Woodley; second, 5*s*., E. H. Hodgman.

ESSEX AGRICULTURAL SOCIETY.

The thirty-second annual Show of this Society was held on Wednesday and Thursday, June 12 and 13, at Lexden Park, Colchester. The Show was a great success.

The tents of the Essex Bee-keepers' Association were a great feature at the Show, and were visited by large numbers of people. The entries for the competitions were in excess of last year, and the quality of the honey as a whole was good. In addition to the ordinary prizes there were offered to members of the Essex Bee-keepers' Association a silver medal for the three best exhibits of section honey, and a bronze medal and certificate of the British Bee-keepers' Association for the three best exhibits of comb or run honey. The silver medal was won by Mr. W. Debnam, of Chelmsford, the bronze medal by Mr. C. J. H. Fitch, of Sible Hedingham, and the certificate by Mr. R. T. Shea, of Little Wakering Vicarage. An examination was held for the third class certificate in practical bee-keeping of the British Bee-keepers' Association. There were three candidates, of whom Mr. F. J. Shephard, Maglona Villa, Derby Road, Woodford, passed. Short lectures were delivered in the bee tent by the Rev. Dr. Bartrum, of Wakes Colne, Mr. Edmund Durrant, of Chelmsford, Mr. C. R. Finch, of Great Baddow, and Mr. F. H. Meggy, Hon. Sec. of the Essex Bee-keepers' Association, while, Mr. W. Debnam the expert of the County Association, gave demonstrations in bee driving. Mr. W. W. Bunting, hon. local adviser for Colchester, Mr. T. W. Norman, Ipswich, and Mr. F. H. Brenes, Brentwood, assisted in the bee tent.

HEREFORDSHIRE BEE-KEEPERS' ASSOCIATION.

Hive and Honey Show.

The above was held at Hereford in connexion with the meeting of the Herefordshire Agricultural Society on July 9, 10, 11.

There was but little competition in the hive classes,

only two makers competing; but each brought (not for competition) a varied and useful exhibit of bee-appliances.

The honey classes were well filled, and the quality good, no dark honey being shown. Mr. Meadham showed a large collection of honey not for competition, and Mr. Alfred Watkins his set of lantern slides to illustrate a lecture on bee-keeping.

Manipulations and lectures were given in the bee-tent the second and third days of the show, the opening day being thoroughly wet.

PRIZE LIST.

Best complete hive:—1. M. Meadham; 2. E. J. Burtt. Best cheap hive:—1. M. Meadham; 2. E. J. Burtt. Best straw hive with supers:—1. M. Meadham; 2. E. J. Burtt. Best smoker:—1. M. Meadham; 2. E. J. Burtt. Best six 1-lb. sections (open; 13 entries):—1. Rev. G. Herbert; 2. W. Tomkins; 3. Miss Marrillier. Best six 1-lb. sections (novices; 5 entries):—1. J. Wooton; 2. W. James; 3. J. Thomas. Best six 1-lb. jars extracted honey (open; 14 entries):—1. J. Wooton; 2. W. Tomkins; 3. Rev. G. Herbert. Best six 1-lb. jars extracted honey (novices; 4 entries):—1. J. Thomas; 2. W. James.

GOOLE AND DISTRICT BEE-KEEPERS' ASSOCIATION.

A Committee Meeting of above Association was held on Friday evening last, for the purpose of considering the advisability of holding a show amongst its members, and the decision arrived at was, that an exhibition of honey, &c., be held on August the 17th, in the apiary of Mr. Chester, who kindly placed it at the disposal of the Committee. Endeavours are to be made to get the bee-tent of the Y.B.K.A., also a competent bee-master to drive bees and lecture, &c., in the tent, the public to be admitted free, the object being to create a demand for honey, and thus assist members in the disposal of their harvest.

HIVE-BEES AND HUMBLE-BEES.—Huber relates a singular anecdote of some hive-bees paying a visit to a nest of humble-bees placed under a box not far from their hive, in order to steal or beg their honey, which places in a strong light the good temper of the latter. This happened in a time of scarcity. The hive-bees, after pillaging, had taken almost entire possession of the nest. Some humble-bees, which remained in spite of this disaster, went out to collect provisions, and bringing home the surplus after they had supplied their own immediate wants, the hive-bees followed them, and did not quit them until they had obtained the fruit of their labours. They licked them, presented to them their proboscis, surrounded them, and thus at last persuaded them to part with the contents of their honey-bags. The humble-bees after this flew away to collect a fresh supply. The hive-bees did them no harm, and never once showed their stings, so that it seems to have been persuasion rather than force that produced this singular instance of self-denial. This remarkable manœuvre was practised for more than three weeks, when the wasps being attracted by the same cause, the humble-bees entirely forsook the nest.

WASPS HAVE SENTINELS.—This is confirmed by an observation of Mr. Knight's in the *Philosophical Transactions*, that if a nest of wasps be approached without alarming the inhabitants, and all communication be suddenly cut off between those out of the nest and those within it, no provocation will induce the former to defend it and themselves. But if one escapes from within, it comes with a very different temper, and appears commissioned to avenge public wrongs, and prepared to sacrifice its life in the execution of its orders. He discovered this when quite a boy.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR *of the "British Bee Journal," c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements.)*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

OUR HONEY IMPORTS.

The total value of honey imported into the United Kingdom during the month of June, 1889, amounted to 587*l.* [From a return furnished by the Statistical Department, H. M. Customs to E. H. Bellairs, Wingfield House, Christchurch.]

SCREW CAP BOTTLES.

[2231.] 'Woodleigh,' in yesterday's *B.B.J.*, points out the great want of honey-tight screw cap bottles, and having used a large number myself I must say it would be a boon to get such a bottle. Honey seems such penetrating stuff that a little leak goes a long way—outside the bottle. Two things are against the present bottle: the cork wad is often more or less holey, but worst of all the metal cap is rarely strong enough or well-fitting enough to enable one to screw down quite tight.

If you, Mr. Editor, can find room for two or three suggestions, I should like to mention the lines on which improvement seems possible. If the present cork wad were faced with indiarubber, a much less pressure would suffice to make a tight joint; or a flat ring of rubber, preferably attached to a circular piece of some substance, say stiffish vegetable parchment, could be substituted. Perhaps your readers can suggest something better for using the present slight compressive force of the cap.

Beyond that, and treating the metal cap simply as an ornamental dust-proof cover, could not the usual cork wad (or an equivalent) be covered with bees-wax and be sealed on to the top of bottle either by heat or mechanical pressure before screwing on the cap?

Modifying the form of neck slightly, could not a cork bung be forced in before capping? or, lastly, could not the upper part of neck be made 'tie-over,' and the cap with screw or straight sides come down over it?—HONEYSUCKLE.

BROOD-SPREADING IN SPRING.

[2232.] The advice usually given to the inexperienced is, Don't spread the brood; that is, Insert empty combs *in* the brood-nest in distinction to giving room outside it; and with a prolific young queen and plenty of stores left over from the winter, I certainly think it is best left alone, and even with an average queen the novice had also better 'leave well alone;' for to push breeding to its uttermost limit is a very ticklish affair. A few fine days after doing so will make all safe through the young bees hatching out, but unfortunately a few cold days instead render the expected benefit a positive harm. Brood is chilled, which, besides, is generally in an advanced state or perhaps hatching, whereas, if the bees themselves over-extend their brood-nest, the outside brood consists of eggs or very young grubs, and can be better sacrificed than older grubs on which much labour has been expended in feeding and keeping warm.

Now, there are cases in which brood-spreading is very

advantageous even for the inexperienced; I had an instance last year. Two hives in the middle of April had bees well covering seven frames each, one hive having five frames of brood and was progressing rapidly, and the other (having old sluggish queen) had only two frames brood. The gooseberries were in bloom and pollen was plentiful, and there was no reason why the old girl shouldn't be pushed forward a bit.

As a rule, and a good one too, at that time, or as soon after as possible, the bees should be confined to as few frames as they can well cover, which in the case mentioned was seven, and the number of frames of brood brought up to two less, or five, the end combs being for pollen, sealed stores, or otherwise, and acting as a protection to the brood. For rapidly building up a stock in spring one great requisite is warmth. Close up every crack, cranny, and crevice except a small entrance; thick, cork-packed dummies are splendid, and will often make an extra frame or two of brood quite safe. Say, instead of seven frames close up to six, and then the whole six can be brood if the second great requisite of steady, stimulative feeding be attended to. An extra frame of brood means in six weeks' time three or four extra frames of bees to fetch in the honey.

It thus pays best to pack very warm all round and over the top, crowding the bees somewhat, and by shifting the frames get every one nearly filled with brood. But this is working at high pressure, and requires considerable attention in feeding, there being little or no room for stores; and a cessation in a steady supply of food would mean ruin to the colony. Consequently, I think for the less experienced or those who cannot devote much time to looking after their bees the slower process is the better,—I mean leaving the two outside combs broodless.

Whichever method is adopted, brood-spreading, though slow work for the first few weeks, tells heavily in the end if practised upon the right colonies. Most backward colonies appear to have a critical period in the spring, when they seem to diminish in population, then remain stationary, while they gather strength for the forward rush which follows, and we must catch the tide on the turn, and by giving extra frames in the brood-nest as required we take full advantage of the expansion.

Now, I always reckon (in the spring) that a good frame of brood when hatched out gives enough bees to cover two frames, but at the same time the old bees are dying off, so the increase is only about one frame. Working from that as a rule, it is easy by taking careful notes to know exactly when to put in an extra frame; and it can be popped in by just sliding half the frames to one side and inserting it in the middle and closing up again. To take an example, say a colony, when examined, covers five frames, three of which are brood; then the hive should be enlarged one frame in ten days, another six days later, and a third frame five days later still, for in the three weeks' time the original three frames of brood will be all hatched out, and the result should be eight frames covered, five of which are brood and one empty frame ready for the queen. Allow three days for the queen to fill the empty comb, and twenty-one days later, or forty-five days since we commenced, the hive ought to contain fourteen frames well covered with bees, and twelve of which, if the queen is capable enough, should be brood, and be a hive likely to give a good account of itself during the honey flow. Of course, with more frames of brood to start with, the same result would be obtained in less time.

The finest combs for placing in the centre of the brood-nest are those clean sheets of foundation worked out to about ¾ inch thick. I often get them in the autumn, in the doubling boxes. Clean and bright, the queen fills every cell with brood. A very good plan is to pour a pound or so of syrup into a comb before spreading the brood with it, or, if the comb has sealed stores, to bruise the cappings. I think a plain sheet of foundation should not be placed in the brood-nest until there are already at least five frames of brood.

The foregoing was written some weeks ago, and the experience of the late spring fully confirms my opinion that the novice, at any rate, had better build up his stocks by rule than rely upon his own judgment. After honey begins to come in freely progress is much more rapid, and may be allowed for in spreading the brood.—HONEYSUCKLE.

SWARMING AND HIVING SWARMS.

[2233.] In a good honey season bees will swarm more or less in spite of all the surplus boxes and extracting, but more when only supplied with sections. Consequently, each apiarian ought to be prepared. Especially those who want to increase their stock of bees, each ought to be provided with a hiving bag, made as follows:—Get an iron ring made of a light half round iron rod, about one foot and a half wide, with a piece welded to one side of the ring about eight or ten inches long, with three holes to bolt it to a handle or long pole made of light wood, basswood. This ring ought to be at right angles with the pole when fastened. Sow on some good cotton to this ring to make a bag. When the pole is held straight up the bag hangs open; when a swarm lights on a limb, raise your pole until the mouth of the bag is under the cluster, tap the limb with the iron, especially where fastened to the pole, and the swarm will drop into the bag. By pushing it out horizontally, the mouth will close, and you can carry your swarm to your empty hive or honey-box; shake them out on the hiving-sheets in front of the hive, raise up the edges over the hive until the bees commence to run in, when you can easy tell by the hum they raise when the sheet may be laid down again.

All the difference in this hiving-bag from all those I have seen in the journals and books is, it hangs open when the pole or handle is held perpendicular; the others were held horizontal. It is convenient to have a few light boxes to catch the swarms in when the queen's wings are clipped, which often saves a great deal of trouble. When I see a swarm coming out I get a queen-cage and watch until I see the queen, place the mouth of the cage gently over the queen, and she will invariably run up into it; close it by a plug of soft paper. When the swarm is all out, or nearly so, I cover the old hives with a sheet close to the ground, place an empty hiving-box close up to the front of the hive, with a loose bottom board by the cage with the queen right at the doorway; the swarm will soon begin to return, and when they begin to light on the cage and start humming, they will begin to cluster rapidly. Take the plug out of the cage, and you will have your swarm in the hiving-box in a short time. Carry the box to where your hive with foundation or comb is; place a hive-cover on board, level with the bottom board of hive; cover with a sheet. Shake the swarm on this as close to the door of hive as possible, raise the out edges of the sheet over the hive, and shake it if the bees run up it. When they are well started running in, leave the sheet open and the job is done. As soon as the scattered bees alight or join the swarm, remove the sheet from the old hive. It is necessary to cover the old hive to prevent the swarm going back. When they find they have no queen they very seldom cluster on a tree, and, if they do, they will return to the old hive in about a quarter of an hour. When they find the old hive covered, they very soon find the queen and go into the hiving-box. This plan saves a great deal of heavy lifting, as some of the hives with the supers are too heavy for one person to move. If you don't want second swarms, remove the queen-cells about the seventh day, leaving one; or if you have a young queen, remove them all and introduce a queen. This hive will be strong in bees, and be able

to go on with storing honey in a week, as young bees are hatching every day. Second swarms are more apt to light higher up in trees if you have tall pine or spruce, but you can reach a very high limb by having a long, light ladder, and by adding another piece to the handle of the hiving-bag by two rings or any other device. When a swarm lights on the trunk where they cannot be shaken off, take your hiving-box along and a tin dipper; gently run the dipper up close to the bark of tree, and the bees will slip into it. Empty each dipper full into the box; when you have the most of them, set your box on a bottom board near by, and if you have the queen the rest will follow.—DR. DUNCAN, *Embro, Ont.* (*From Canadian Honey Producer*).

HOW TO DRIVE ANTS OUT OF BEE-HIVES.—MANUM'S METHOD.

HOW TO USE THE MANUM SWARM-CATCHER.

[2234.] *June* 1.—'Mr. Manum, what shall we work at to-day? We have got the sections all filled with foundation, the new hives nailed and painted, and I can't think of anything more to do here.'

'Well, Leslie, I have heard you and the other boys talking about trout-fishing when you get the work done. It is now done, and I propose we all go to-day. While Fred and I are hunting up the fish-tackling, you boys may get the bait: and to-morrow we will work at the bees.'

June 2.—'Here we are, Will. To-day we are to see that the queens are all laying well; and where we find any with only ten or eleven combs we will give them more, as I think they are all strong enough now to cover the twelve combs. However, if you find any that are not, we will run them through the season with what they have, unless we give them a card of brood from a very strong colony that is liable to swarm before we come here again; also see that they have honey enough to last a week or ten days. Be sure not to forget that, because this is the trying time with the bees, it being the period between fruit and raspberry bloom. The bees are rearing so much brood now that they use up stores very fast, and the bees that will hatch in the next twenty days are just the bees we want to gather our surplus; hence it won't do to starve them now. We will now fill these carrying boxes with combs containing honey, and take them along with us to save steps.'

'Here, Mr. Manum, I wish you would look into this hive.'

'Oh, *ants!* and a lot of them too! Well, just wait a moment while I go to the honey-house. There, I will put some of this tarred paper in the hive, and by to-morrow every ant will be gone. This is the simplest remedy I ever tried. Now, as there are no more combs with honey in we shall have to put on sections partly filled with honey, left over from last fall, wherever they need feeding. It makes it pretty handy to have these partly filled sections on hand. We will just uncap the honey, and by the time we are here again the honey will all be below, and then the sections can be taken off.'

June 6.—'Now, boys, I noticed yesterday that the raspberries were beginning to blossom, and I think it is time you should go to your respective yards. Fred will will take two of you to your yards. Leslie will go to his by the railroad, and I will go with Scott to his yard. (Henry has a family, and lives near his yard.) Here we are, Scott. You will board with Mr. Smith while here.'

Scott says, 'Mr. Manum, I wish you would lay out some work for me to do while I am waiting for swarming.'

'Work! you will find there is work enough before the season is over. In the first place you should examine every swarm, to see if any of them need anything. You may find some that have lost their queen, as there are a few three-year-old queens in this yard; and you know some of them are not full of comb, and where you find such, if they are pretty strong, and the queen laying well, you can spread the brood-nest and insert a comb in the centre. It will be safe to spread now at this season.'

'What shall I do if I find any that are queenless?'

'You will find that such colonies have queen-cells, and if the bees are pure and large, with long wings, and the stripes—or bands—instead of being light yellow, are of a yellowish-brown, you may leave one to hatch; but if they are not pure Italians, or if the bands are of a bright yellow, or if the bees are small-bodied and short-winged, you may cut the cells out and give them eggs from one of those hives we have marked to breed from.'

'Light-yellow bees may answer in the South, where the climate is more mild than here, but here in the North I find that the dark, or leather-coloured bees, are preferable, hence I do not breed from very light-coloured queens.

'Now, when you give such a colony a card of eggs for queen-cells you should cut holes in the comb the shape of an inverted A, or, more properly, an equilateral triangle, with the point upward.'

'Mr. Manum,' says Scott, 'the books nearly all say that a long slit should be cut in the combs. Why is this triangle shape better?'

'Because it does not weaken the combs so much as a long slit does; and, besides, I think the bees prefer to build cells on a nearly perpendicular edge rather than on an horizontal one. Probably by the time these cells are old enough to transfer, you may need queen-cells in some other hive, or you can use them in your queen-rearing nuclei.

'After you have looked the bees over, the next thing to do will be to level up all the hives, as they are liable to get out of level during the winter. It is important that they be perfectly level, for unless they are you will be bothered to get straight combs in the sections.

'When you have done that you will want to clean up the yard. Here is a rake, a hoe, a shovel, and a basket. I like to see a yard kept clean during the working season at least. You can then mix some paint, and paint such hives as need it. Should there be a rainy day you can fasten foundation in the brood-frames. I don't like to fasten it in at home, as it is apt to break down when transporting it over our rough roads; and besides, I want work for the boys to do rainy days, or you would get lonesome.'

'Well, Mr. Manum,' says Scott, 'you were right when you said I should have work enough to do. I think I should not have time to get lonesome—Ha, ha!'

'Now I must go. I shall call on you in three or four days; and after you have learned how to hive bees after my method I shall come only once a-week; I aim to visit each yard once a-week, hence I have to visit two some days, as I have eight yards, and there are only seven days in one of our Vermont weeks. Now, if I should *happen* to visit you on Sunday, please don't ever mention it, as Mr. Root will hear of it, for he would surely give me a talking-to, and I know I could never stand his reprimand. Good-bye.'

June 15, *at Caton Apiary.*—'Good-morning, Will! How are the bees doing here?'

'Pretty well for the last two days. Yesterday the scale-hive gained 6 lbs.'

'If that is the case some of the hives must be ready for the boxes. Let us open some and see. Yes, this one ought to have boxes on at once. You see, every comb is full of brood or pollen, and some honey; and as you see, every cell from which a bee has hatched is full of new honey and bits of new comb built on the upper edges of the frames. This indicates that more room is needed. There is a swarm coming out!'

'Where?'

'From No. 60. Get me the swarm-catcher, and I will show you how to do it. There, open the catcher-cage and hold it to the entrance and catch as many bees as you can and close it; lay it down and watch for the queen; as she is clipped she can't fly. There she is. Now I take her and put her in this little round pocket-cage that has a small wire hook to it, and hang this cage outside the catcher. It would be as well to put the queen right in the catcher; but in doing so some of the bees would escape; and, besides, by having the queen in this small cage she can be handled better than in the large catcher-cage. Now I see the swarm is circling over the north side of the yard. I take the catcher and set it up directly under the swarm, and leave them to themselves and go about putting on boxes as before, at the same time keeping an eye on the swarm. As I have explained to you how to hive the bees, it is not necessary that I repeat it, for I see you hived those six swarms yesterday all right.

'Now one word before I go. Be sure to keep a close look out for swarms, because it is much easier to get the queen as she comes out of the hive than to hunt for her if she gets in the grass; and, besides, the sooner you get the catcher set up, the more likely you will be to catch the swarm and prevent clustering in a tree or returning to the hive. Hence, when you see a swarm coming out, *hurry* to it at once. Yes, *run* if you are a slow walker.' —A. E. MANUM, *Bristol, Vermont* (*from Gleanings*).

FOUL BROOD.

[2235.] I have just cured a colony of foul brood in three weeks without feeding or destroying an atom of comb or any larvæ. When I started it was full of dead larvæ, and cells full of putridity. Now it is one mass of healthy larvæ, without the slightest sign of disease. If it answers on all colonies as it has done in this, foul brood will be soon banished from everywhere. It is something quite fresh, not entirely my own doings, although the experiment was entirely conducted by myself. It is really marvellous. I am quite excited over it. You have no conception of the change in the colony from its (the cure) first application, without even opening the hive after the first time.

[We have received the above communication in a private letter; but the announcement it contains is so pregnant with bright hope that we have ventured to give it publicity, in order that our correspondent, who is one of our most advanced bee-keepers, should have whatever credit or advantage may accrue from priority of publication.—ED.]

WASPS' NEST IN BAR-FRAME HIVE.

[2236.] There is little or no alteration in the appearance or size of the nest this week; consequently, the measurements given last week will apply now.

I noticed on the quilt, directly under the entrance of nest, seven grubs, three of which were of a blackish colour, which, I suppose, had died and been cast out.

The wasps do not seem to be very active.—C. C. MOORE, *Altrincham, July* 15, 1889.

NOTICES TO CORRESPONDENTS & INQUIRERS.

H. H. L.—*Commotion in Front of Hives at Midday.*—This is always seen where a queen is breeding freely, and is in a prosperous condition. It is the young bees taking their first flight, and marking the location of their hives.

JOHN BROWN.—*Bees on top of House.*—It is not at all a desirable position, unless there is no other place to put them. Bees returning laden fly low, the outgoing (unladen) high, therefore it is policy to have the hives low down.

ABERDARE.—1. *Early Swarms.*—To obtain these bees must go into winter quarters with plenty of stores, and stimulative feeding commenced about beginning of April, weather permitting. You will then have swarms by middle of May. 2. *Packing Swarms.*—These are best packed in square boxes, with perforated zinc or wire cloth at top and bottom, battens being placed outside on bottom to raise same about an inch from ground.

M. CORKHILL.—*Salicylic Acid Solution.*—Salicylic acid, 1 oz., borax 1 oz., water 4 pints. To every 10 lbs. of sugar made into syrup, add 1 oz. of the foregoing solution. Feed the bees up for winter with this medicated syrup after you have taken off the supers. A change of queen would be beneficial.

B. B. H.—1. *Bees refusing to go up into Supers.*—A colony that has swarmed three times is very unlikely to work in supers. You ought to have prevented the two last swarms; in fact, all three if possible. They would then have filled your sections. You cannot expect increase of stocks and honey at the same time. 2. *Savage Bees.*—The first swarm would not be more savage than the parent colony, as it is the queen of the latter that is with the swarm. The only explanation would be that they have superseded their original queen, and her successor has been crossed with a drone from another savage stock. Change the queen.

AMATEUR.—*Keeping Honey.*—Honey is best kept in a warm, dry place. Dryness is a desideratum. Sections should be packed in boxes with close lids. The less it is exposed to the air the better it keeps. Temperature not under 50° F. if possible.

U. V. W.—*Bumping.*—1. Breaking the combs from their attachments to the skep by 'bumping' the skep, held in a diagonal position, on the ground. 2. *Capturing a Queen without getting Stung.*—You must take your chance of being stung, as in all manipulations with bees. 3. *Is the Sting by a Queen more serious than one from Worker?*—We have never been stung by a queen. The number of bee-keepers who have could be counted upon the fingers of one hand. 4. *Does the Queen lose her Sting when stinging?*—We cannot answer this as regards the application of the sting to a human subject. She does not when stinging another queen. 5. *To unite driven Bees to a Colony in Frame-hive.*—Shake both lots together on a board in front of hive, and allow them to run in together. 6. *How long may Brood be kept out of Hive without Injury?*—This entirely depends upon the temperature. Last season a writer in this *Journal* advocated sending brood and eggs without bees by post, We had grave doubts about the feasibility of so doing. so have this season experimented in this direction, and find that uncapped brood and eggs will not live or be hatched if removed from the hive six hours, and exposed to a temperature from 60° to 75° F. Eggs have refused to hatch after two hours exposed to above temperature.

J. O. CLENMOW.—1. *Dead Queen.*—To all appearances her condition is quite normal. 2. *Old Comb.*—If these are boiled, there is no danger of infection from the wax so made. 3. *Improving Colour of Wax.*—Only by bleaching.

SAMPLE OF DARK-COLOURED HONEY.—The flavour of the honey was very good, but its colour was dark, and therefore disappointing and rendering its sale very difficult. It has been collected from beans and limes, and probably honey-dew.

D. R. DALY.—*Artificial Swarm.*—In your case we should recommend you to remove your queen and about three frames of brood (by preference either sealed or nearly so) into another hive, then leave the remainder to raise a queen, get her fertilised and laying, then you

can unite your two artificial swarms, or you might give the first a spare queen-cell in case they may require it. The old queen, with careful attention, will soon build up the colony.

E. Dove.—I. *Supering.*—We prefer placing the fresh rack of sections *under* those being completed, and then, later on, removing the upper rack bodily to a convenient place where those not quite finished can be inserted in the outside rows of a fresh rack if the season is not far advanced. If nearly at the end of the season then put them in the centre. See answer above. 2. *Wired Foundation* is, in our opinion, less liable to break away if properly done.

H. Livermore.—*Extracted Honey* should be placed in a vessel of small diameter in proportion to its height, which should have a tap at the bottom. Let the honey stand in a warm room for two or three days. Draw off until it shows signs of thinning. The thin honey should be fed back. The answer to your other question depends upon the weather.

Carbon.—*Loitering Bees.*—We should say the old queen is with the artificial swarm. Examine the old stock, and you should find queen-cells by now. If so, you might put two frames in another hive, packing them up warmly, and take care they have a *sealed* queen-cell (this would be making a nucleus). Let the old stock also have *one* queen-cell left, and when both queens are hatched and laying worker eggs remove the old queen from the artificial swarm, give the queen to it from the nucleus, and return the bees from the nucleus to the parent stock. You will then have two young queens, and at the same time have guarded against any period of queenlessness.

Feeder.—*Extracting.*—Except in heather districts, it is best to do all extracting before middle of August; in heather districts then *immediately* the honey flow is over. Autumn feeding should be begun gently directly the extracting is complete. If the bees have been deprived of nearly all their stores otherwise breeding will nearly cease. About third week in September feed about 30 lbs. of good syrup to each colony as fast as they will take it. Your stocks should not require feeding till March or April, but circumstances alter cases, and examination alone will determine.

Novice.—*Dead Bee.*—This appears to be a young queen, but of very small size. Your bees need not necessarily be queenless, but it would be easy to make an examination and see if there are any eggs or very young grubs.

Beeswing.—Your interesting note will be dealt with next week.

H. Y.—1. *Extracting.*—Although it is preferable to extract from frames having no pollen in them, still it is seldom possible, and you will not find it interfere with the extraction. 2. *Uniting.*—Yes, do as you suggest if you have any doubts about them being strong enough to winter without. End of August, or beginning of September, would be a good time.

E. Plater.—*Weak Colony.*—Evidently an old or injured queen.

Raw Hand.—See 'Useful Hints' this week. Your doleful experience came too late to answer in full this week; we will take it in hand next week.

The replies to several questions on botanical subjects have not been received from our horticultural authority.

SHOWS TO COME.

Bees, Hives, Honey, etc.

July 24th and 25th.—Lincolnshire Agricultural Society at Louth. Entries close July 9th. Secretary, Stephen Upton, St. Benedict's Square, Lincoln.

July 31st and August 1st.—Glamorganshire General Agricultural Society at Treorky, Rhondda Valley. Secretary, D. P. Davies, Commercial Street, Aberdare.

August 6th, 7th, and 8th.—Yorkshire Agricultural Society, at Hull. Entries close June 29th. Secretary, Marshall Stevenson, York.

NOTTS ASSOCIATION.

July 24.—Sutton-in-Ashfield.
July 25.—Southwell.
July 30.—Farnsfield.
Aug. 5.—Beeston.
Aug. 15.—Woodborough and Epperstone.
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Editorial, Notices, &c.

EMINENT BEE-KEEPERS.

No. 8.—BARON VON BERLEPSCH.

The memory of the Baron von Berlepsch will always be held in high honour as one of the most practical bee-masters and as one of the greatest writers on apiculture of the present age. We, therefore, have much pleasure in giving him a foremost place amongst our 'Eminent Bee-keepers.'

BARON VON BERLEPSCH.

August, Baron von Berlepsch, was born at Seebach, near Langelsalza, in Thuringen, on the 28th of June, 1815. Even in the days of his childhood he manifested a remarkable partiality for bees. His greatest pleasure was when he could elude the vigilance of his governess to run to the apiary of a neighbour, Gottlieb Richser. When she requested him to return to his father's house he would place himself amidst the bees and playfully ask her to come and fetch him. On his attaining the age of seven his father presented him with a hive of bees. When he was ten he was the owner of four hives, which he took with him to Heroldeshausen to the house of the Curé Venck, who had the charge of his education. Since which time he has always owned bees; and while studying law with Prof. Doring (who was an enthusiast on bees) young Berlepsch was permitted to bring with him a few hives, which were placed in the apiary of his professor.

When a pupil at the Gymnasium (High School) he resolved to study ancient classic philology, but his father objected and obliged him to study jurisprudence. He became reconciled to the study of law at the Universities, which he attended insofar as to study *corpus juris* industriously and with philosophical exactness. But his father further insisted on his practising law, with the hope of seeing his son become some day Minister of Justice. The dull routine of work, however, disgusted the young lawyer in a few years; the consequence was that he quitted law and devoted his time to scientific studies in Munich, until the death of his father in 1841.

At the death of his father he was the owner of 100 colonies and had read a great many books on bee-culture, and had made acquaintance with some of the most advanced bee-keepers of his country. In his apicultural practice he received much assistance from Günther, the son of his gardener, whose powers of observation and of patience were as useful to him as those of Burnens to his blind master Huber. His apiary was a model one; and as it was visited by bee-keepers from all parts of Europe it might well be designated 'a school of apiculture.'

From 1841 to the year 1858 he lived on the family estate of Seebach, his favourite pursuits being bee-keeping, pomology, and the study of classical philology. From 1858 to December, 1866, when he married at the advanced age of fifty-one, he resided at Gotha, and from that time his wife and he had a most happy home at Coburg.

Baron Berlepsch at first used hives with immoveable combs. When about that time Dr. Dzierzon invented hives with moveable combs, he watched with the greatest concern this revolution in apiculture, and gave it as his opinion that it was a calamity which would do a great deal of injury to bee-keeping. However, he paid a visit to Dzierzon, and having convinced himself of the correctness of the method, he from that time became a warm and earnest supporter of Dzierzon's theory; indeed, he became the most zealous advocate of the hives with moveable combs; and his letters, which appeared in the *Eichstadt Bienenzeitung*, silenced Dzierzon's opponents and largely contributed to the success of the new system. Von Berlepsch carried out a great many valuable investigations in regard to the economy of bees, and was the inventor of the frames and the so-called Berlepsch hive and the pavilions.

In his contributions to the *Bienenzeitung*, he at one time was also much opposed to Dzierzon's theory of the parthenogenesis of the queen. But Von Siebold and Leuckhart having visited his apiary, and there experimented on the eggs of workers and of drones, Berlepsch was convinced of the truth of the result of the observations of Dzierzon, and from that hour he became one of his most hearty and intelligent upholders.

In 1858 he parted with his Seebach estate to his brother, and gave up bee-keeping, but he continued to take a deep interest in bees up to the time of his death.

Von Berlepsch was the author of a large work on bees, entitled, *Bees and Bee-keeping in Districts poor in Melliferous Plants considered from the present state of the theory of Apiculture*. The first edition of this work appeared in 1860. This book was very beautifully written, and quite fascinated the readers of the day. The work, however, was burdened with controversies with Dzierzon; in the second edition, which appeared in 1868, he frankly acknowledged the errors he had previously maintained. Berlepsch had not the practical ability of Dzierzon, but his wealth permitted him to procure most of the works on apiculture that had been published in Germany, and his leisure gave him time to read and compile from them what he considered worthy of note, and to have intricate and personal experiments made. It is therefore no wonder that it ranks as one of the best and most complete works on bee-culture ever published. The second edition was the result of much labour, he having, it is affirmed, perused upwards of 17,000 pages to make it perfect.

In 1867 he suffered from an attack of apoplexy, which rendered him an invalid during the remaining portion of his life, and the second edition of his work is the result of the valuable help rendered by his wife the Baroness Lina von Berlepsch.

From Coburg he removed to Munich, where he died on September 17, 1877, at the age of sixty-two, after a long and painful illness.

THE SHROPSHIRE BEE-KEEPERS' ASSOCIATION.

We desire to direct the attention of our readers, not only those in the neighbourhood of Shrewsbury, but of bee-keepers throughout the kingdom, to the annual honey fair and general exhibition of honey, hives, and bee appliances, which will be held in conjunction with the Shropshire Horticultural Society, in the Quarry, Shrewsbury, on Wednesday and Thursday, August 21st and 22nd. We have looked over the schedule of prizes, and have found it most liberal, and consider it to be the most comprehensive which has been brought under our notice this season, and augurs well for the new organization, under whose auspices the arrangements have been made. We trust the Show may meet with all the success it deserves, and prove beneficial to the bee-keepers of the Shropshire Association.

PHOTOGRAPHIC GROUP OF BEE-KEEPERS.

On Thursday, June 27th, a number of bee-keepers being present at the Royal Windsor Show, 'the happy thought' of having them photographed occurred to Mr. Hooker, and this meeting with the approval of all, he forthwith took measures for carrying it into execution. We have been favoured with a view of the photograph, or rather we should say photographs, one being taken in the tent and the other in the open. The great majority of the likenesses are very good and recognisable, but others, through their having moved, are not so distinct. Amongst them we recognise the Hon. and Rev. H. Bligh, Messrs. Cowan, Huckle, Garratt, Hooker, Grimshaw, Meadows, Howard, Buller, Neighbour, Overton, Broughton Carr, W. Carr of Manchester, Walton, Truss, Timberlake, Baldwin, Henderson, and several others. One view is half-plate and the other whole-plate. If any of our readers should desire to possess a copy of the group, an application to Mr. Huckle would furnish them with the necessary information as to price, &c.

BEES IN A LOCK.

We have received from Mr. H. Collins, of Berry Wood, Northampton, a curiosity in the form of a nest of Andrenæ, or solitary-living bees, which were discovered in a mortice lock, which, being broken, had not been in use during the past nine months. The parent bees have found their entrance through the key-hole, and have utilised every portion of the lock. They have commenced from the top, and built to the bottom of the lock. The cells, thirty-five in number, are constructed of grains of sand, agglutinated together by a viscid saliva which the bees have the power to secrete; some of them are filled with yellow pollen. They exhibit all the stages of bee-life—the egg, the larva, and the pupa. It is a wonderful exhibition of the architectural skill of these insects, and displays the vast amount of industry which has resulted in these massive cells, and in the large aggregation of bee-bread necessary for the support of their progeny.

THE PRICE OF HONEY.

The greatest difficulty the bee-keeper has to contend with in a plentiful honey season, is to dispose of his honey at a reasonable price. It is the same with all industries, when at times the supply seems likely to be greater than the demand; then the public take advantage, and the price has to come down to suit the times. Already we hear of the price of honey being very low in certain places, and some would try to make us believe that it will be still lower. In comparing this season with the plentiful 1887 honey crop—when fair prices were got for honey nearly everywhere—there is little cause to show why we should not have a better price this year than the one above mentioned. Trade prospects look brighter, all the old honey is cleared out of the market, sugar and preserves have risen largely, there are fewer stocks now than there were two years since, and there is also very little to fear from foreign competition, consequently producers of honey should not miss the opportunity, but hold out for a fair price. What is wanted now-a-days, is to encourage the public more in the using of honey until it becomes a daily article of food. Once this is accomplished there will then be less fear of glutting the market. The crop of honey this year will scarcely be one half of what it was in 1887—that is throughout Britain. Lately I have had inquiries asking what price should honey be sold at this season. To all I answered, Hold out for a fixed price; take nothing less than 1*s.* per lb. for comb, and 10*d.* per lb. for extracted honey. If these prices have to be reduced, let it only be done later in the season. Heather honey always realises a higher price than any other. The appearance of the bloom, and its being exceptionally early, all seem to indicate that we may look for a big return from the moors.—W. McNally.

H.R.H. PRINCESS CHRISTIAN ON BEE CULTURE.

Having been asked, as President of the Berkshire Bee-keepers' Association, to write something for the monthly paper, I am glad to do so, in order to show my interest in the work that the Association is doing. As I cannot pretend to have any technical knowledge of bee-keeping, I must confine myself to a very general view of the subject.

I am glad to hear that the interest in bee-keeping is decidedly increasing throughout the country, and that with the cottager class a more humane method of taking the honey is superseding the old rough-and-ready system. There is a question which I do not think has yet been sufficiently answered, as to how far bee-keeping, except perhaps on a large scale, has been found to pay, and yet no doubt the hope that it will be a source of income is a great inducement to keep bees. Apart, however, from the profit-and-loss view of the subject, associations of this kind do good in many indirect ways. A bee-keeper to be successful must study the habits of bees, and the interest of the subject will well repay him for the time and attention he gives to it. Again, any scheme which brings persons of different classes together, who would not perhaps otherwise meet, must have a beneficial effect. These County Associations promote good fellowship, stimulate a healthy rivalry, and encourage interchange of ideas. They break down those accidental barriers between class and class which so often prevent one section of society from coming in contact with another, to their mutual advantage. I have often remarked that sociability seems a special characteristic of bee-keepers; they have interests in common; there is a bond of sympathy between them. The experience and the scientific knowledge of the professional are placed at the disposal of the beginner, who knows that he can always get help and advice; and in his turn he is prepared in after years to assist others in the same way. All such intercourse is most desirable, and is in every way to be encouraged.

I am told that a London Guild has in contemplation the founding of an Agricultural College, and it has been suggested that something might be done in connexion with such a scheme to forward the 'honey industry.' It would give a great impetus to bee-keeping throughout the country were so important a society as the Mercers' Company to lend its powerful aid to the development of this subject.

The question of a market for pure honey must occupy the attention of the various associations. When so much adulterated honey is yearly imported into the country, it must be the aim of the County Associations to help forward and foster in every way the sale of honey whose purity is guaranteed. The consumer ought to know that when he buys honey from members of a County Association, he is really getting what he pays for. A step in the right direction has no doubt been taken by the Committee of the Berks B.K.A., by the issue of a special label to its members, which shall guarantee that all honey so registered is the genuine produce of bees.

The last two bad honey seasons have, I fear, had a very discouraging effect on bee-keepers, especially on those of the cottager class, and something must be done to revive the spirits of those to whom the last inclement season has brought nothing but disaster. I trust that none will be discouraged by past failure. It may be true of bee-keeping as of other ventures, 'that there is a tide in the affairs of men which, taken at the flow, leads on to fortune.'—HELENA, *Cumberland Lodge, May*, 1889. (*From the Berkshire Bee-keeper.*)

EAST LOTHIAN BEE-KEEPERS' SHOW.

This show of bees, honey, and appliances, was held on the 6th of July in Amisfield Park, Haddington, in connexion with the Agricultural Societies Show on that date.

The exhibits were not very numerous, but there could scarcely be a neater or more complete show on so small a scale; in fact, everything considered, it is not at all extravagant to say that there was a capital display all round. The arrangement of the articles was very tasteful, and consequently everything looked its best. The attendance of spectators was not very large—a fact which demonstrates that apiculture has not yet obtained the hold it deserves to have in this county, but still there were those who took an intelligent interest in what they saw and heard. Mr. Howard, Holme, Peterborough, acted as judge. He was present during the day to give any information required, and he delivered some short lectures on the subject in the afternoon. Rev. J. Kerr, Dirleton, who has done much to make apiculture popular here, was also in attendance, and he lectured to those present at three o'clock. Mr. G. D. Clark, Kirklandhill, hon. secretary to the Society, was present throughout the day, and discharged his duties with his customary courtesy and attention. The prize list is as follows:—

Twelve Sections of Comb Honey, 1-lb. size—1, G. D. Clark, Kirklandhill; 2, John Watt, Athelstaneford; 3, T. S. Robertson, Westbarns. Twelve Glass Jars of Liquid Honey, 1-lb. size—1, G. D. Clark; 2, T. S. Robertson. Single Super of Comb Honey, any size—John Wood, Whitekirk. Feeder for all-round Apiary Work—1, T. S. Robertson; 2, G. D. Clark. Sample of East Lothian Bees-wax, in quantity not less than 3 lbs.—G. D. Clark. Novelties and Useful New Inventions connected with Bee-keeping—1, 2, and 3, G. D. Clark. Observatory Hive, stocked with Bees and Queen—1, T. S. Robertson; 2, G. D. Clark; 3, A. Paterson, West Mills, Haddington. Frame Hive and Equipment, suitable for Cottagers—1, T. S. Robertson; 2 and 3, G. D. Clark. Collection of Hives and Appliances—T. S. Robertson. Specimens (cut) of Best Honey-Producing Flowers and Plants—1, G. D. Clark; 2, T. S. Robertson; 3, Rev. Mr. Kerr.—*The Haddington Advertiser.*

WASPS: THEIR TEMPER.—*Shepherd.*—O' a' God's creturs the wasp is the only ane that's eternally out o' temper. There's nae sic thing as pleasin' him. In the gracious sunshine, ... when the bees are at work murmurin' in their gauzy flight, although no gauze indeed be comparable to the filaments o' their woven wings, or, clinging silently to the flowers, sook, sookin' out the hiney-dew, till their verra doups dirl wi' delight—when a' the flees that are ephemeral, and weel contented wi' the licht and the heat o' ae single sun, keep dancin' in their burnished beauty, up and down, to and fro, and backwards and forwards, and sideways, in millions upon millions, and yet are never joistling anither, but a' harmoniously blended together in amity, like imagiuation's thochts—why, amid this 'general dance of minstrelsy,' in comes a shower o' infuriated wasps, red het, as if let out o' a fiery furnace, pickin' quarrels wi' their ain shadows—then roun' and roun' the hair o' your head, hizzin' against the drum o' your ear till you think they are in at the ae hole and out at the ither—back again after makin' a circuit, as if they had repentit o' lettin' you be unharmed, dashin' against the face o' you who are wishin' ill to nae livin' thing, and although you are engaged out to dinner, stickin' a lang poishoned stang in just below your ee, that afore you can rin hame frae the garden swells up to a fearsome hicht, makin' you on that side look like a blackamoor, and on the opposite white as death, sae intolerable is the agony frae the tail o' the yellow imp that, according to his bulk, is stronger far than the dragon o' the desert.—*Noctes Ambrosianæ* (*Blackwood's Magazine*).

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

FOUL BROOD.—ACCOUNT OF ITS CURE IN TWENTY-ONE DAYS.

[2237.] In last week's issue, you, in an extract from a private letter of mine, held out hopes to the bee-keeping public of a speedy extirpation of the scourge to bee-keepers—'foul brood.' I should not, under other circumstances, have made public the progress made towards the solution of this, the most difficult problem in apiculture, until a much larger number and more exhaustive series of experiments had been made by myself; but knowing the vast amount of interest taken by every bee-keeper, not only in Great Britain, but also to the Antipodes, I felt that as the 'ice was broken' that all should know the means used, and particulars of the one perfectly completed experiment made by myself, and also the name of my co-discoverer of what, up to the present, seems to be a final solution to this apicultural dilemma.

Beginning from the commencement of a series of experiments I may say that since last March, when I found a whole apiary infected without even the owner's knowledge as to the dire calamity which awaited him this season when brood-rearing was in full swing, I recommenced to try various antiseptic drugs as a means of curing foul brood, and I think that I tried every drug of this description named in the *Materia Medica*, with varying results, but chiefly with utter failure. The difficulties under which I laboured were great, as I could not, in justice to my customers, bring the subjects into my own apiary, and therefore had to travel backwards and forwards many miles, mostly on foot, as I cannot afford to keep a horse for such a purpose. I also, after examining such colonies, had to thoroughly disinfect myself and cease work in my own apiary for two days. Having no one else that I cared to trust among my bees it caused me a vast amount of inconvenience in the conduct of my business.

In all these experiments I used the drug tried in the food given to the bees. This I found exceedingly difficult, the bees objecting to feed on same, and when honey commenced to come in even refusing pure unmedicated syrup. Among the drugs used was formic acid—tried by several bee-keepers a few years ago—which I gave a deal of attention to, as I thought that this seemed to be more efficacious than any, simply from the fact that the bees would feed more freely on syrup medicated with this than on any other, but with this I failed to cure. I was almost giving the experiments up in disgust when, in a letter of Mr. Sproule's, published in a contemporary, he said that he also had been using formic acid in the food, and also by vaporising, and thought that he had made a cure. I felt confident that the presumed cure was not effected by feeding the bees, as I had fed and fed the same medicated syrup, but with failure, and therefore deduced the theory that the cure was effected by the vaporising only; if so, what a glorious discovery! as this would be the more simple by far than by any other means. I felt so certain upon this point that I purchased a colony as badly affected as I possibly could get. In this colony comb after comb had dozens of affected cells in all stages. I moved this hive nearer my home, having purchased it between twenty and thirty miles away, so that I could conduct the experiment with greater facility, making preparations to burn the lot if in a week they showed no improvement.

I commenced by crowding the bees upon six of the worst combs, shutting the remaining three in a perfectly close box. I then cut two narrow strips of wood half an inch broad and thick and long enough to lay along the runners on each side of hive, so that when the frames and division-board were placed on same the bottoms were raised $\frac{7}{8}$ of an inch above the floor-board. I then made an apparatus which would mould a gutta-percha trough 6 inches long, $2\frac{1}{2}$ inches wide, and $\frac{3}{4}$ of an inch deep, outside measurements. Having formed this trough to my satisfaction, I covered the top with coarse wire-cloth, with the exception of $\frac{3}{4}$ of an inch at the end. This trough I inserted under the division-board, leaving the uncovered end outside same. I then made a wood cover with lid that would cover the end of trough, and also prevent the bees access behind the division-board. The wire-cloth I covered with a solution of gutta-percha. Everything was now prepared for the experiment. Lifting the wood lid I poured three-quarters of an ounce of pure formic acid into the trough, shutting the wood lid and contracting the entrance of hive to two bee-space width. I left them for twenty-four hours, and at the end of each such space of time simply lifted the wood lid and poured three-quarters of an ounce of the acid into the trough. On the sixth day I examined the colony and with feelings of disgust saw no difference; if there was any it was not perceptible to me. Of this more in future experiments, as I think perhaps something will come out of it.

I stood no doubt looking the picture of despair, when a sudden thought occurred to me, and breaking off a small piece of zinc from an excluder I placed this in the trough. Upon next examination, seven days after, writing from my notes, all the newly hatched larvæ were perfectly healthy, compact in cluster, and pearly white. Several dozen cells with perforated cappings containing the coffee-coloured, ropey matter. Uncapped several of these for examination and shut up hive. Placed another piece of zinc in trough, as old piece was eaten away by the acid. Each day poured three-quarters of an ounce of acid in trough until the seventeenth day from first placing zinc in trough. Seventeenth day examined colony. A much less quantity of unhealthy capped cells; perhaps this arises from the number uncapped on previous examination; all of these in a very old comb; in other combs, last year's, no trace of disease. Uncapped all unhealthy cells in old comb, and inserted end of straw dipped in the formic acid and zinc solution. Placed another piece of zinc in trough. Examined on twenty-first day. Not the slightest trace of disease; slabs of healthy larvæ, both capped and uncapped. Bees exceedingly busy bringing in pollen, and queen laying vigorously, a healthy, busy air pervading the entrance, now enlarged to an inch, totally different from when first purchased.

This is as far as I can publish at present I have now three other colonies under experiments. No. 2 colony, bees died out from 'foul brood' and starvation last winter. Combs exposed six days to formic acid vapour without zinc. Artificial swarm after placed on combs.

No. 3 nucleus colony, three frames, populous. Frame removed from No. 1 containing uncapped honey, placed in; not commenced vapouring yet.

No. 4, propagating foul brood by insertion of a piece of infected comb from Plymouth.

In next week's issue, if possible, I will give a brief *resumé* of the above, as, being exceedingly busy and having had to neglect my customers more than I care for, owing to the difficulties under which I labour in

conducting these experiments, I may not find time to do so until following week.

Before posting this article I have examined No. 1 hive just nineteen days from ceasing to apply presumed remedy. Everything satisfactory. Young bees hatching out from what were badly affected (marked) cells.

Mr. Grimshaw, I note, has been using formic acid with bees, but for what purpose I do not know. Perhaps he can give some information as to its effect. I cannot find that it makes any difference in their temper as he has written.—W. B. Webster.

BEE-KEEPING FOR COTTAGERS.

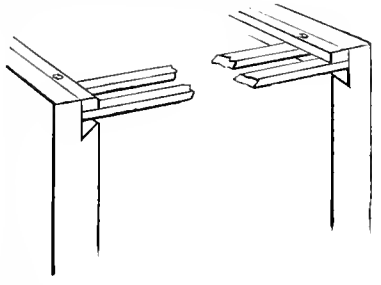
V.

[2238.] We now come to what, at the commencement of these articles, I described as 'the summit of a bee-keeper's ambition'—the management of bees in bar-frame hives. At the present time cottagers are in the main skeppists; but, although I strongly urge cottagers and amateurs, in the present state of bee-keeping, to adopt a step between the skep and the bar-frame hive, I look confidently forward to the time when bees will be kept almost wholly in hives on the moveable-comb principle.

Bar-frame or Moveable-comb Hives.—Frame or bar-frame hives are so called because they contain a number of frames in each of which the bee-keeper compels his bees to build their combs.

Frames.—These are usually of what is termed the British Standard size, viz., 14 inches wide by 8½ inches deep, with a top bar measuring 17 inches. The width of the frame is ⅞ inch.

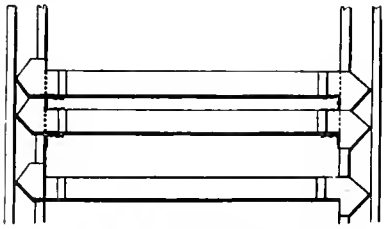
When the Standard frame with 17-inch top bar is used, the hives are usually double-walled front and back. Some bee-keepers—notably Mr. Simmins—are strongly in favour of single-walled hives, and use the Standard frame with a 15½-inch top bar. When this frame is used, the front and back walls should be prepared as shown in the illustration below.



Foundation-fixing.—One great advantage of a frame-hive is that the frames may be prepared with sheets of foundation, which in a few days are converted by the bees into perfect combs. This is of immense importance when we consider that it is stated that the bees in making 1 lb. of wax consume 20 lbs. of honey. Not only by giving foundation do we save the consumption of honey, but we save the labour of the bees and have the swarm ready for storing surplus honey long before it would be if the bees were left to themselves. The top bars of the frames have a saw-cut running through the middle, nearly from end to end, to receive the sheet of foundation.

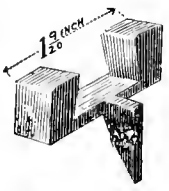
To insert the foundation, place a small screw-driver in the saw-cut, about the centre of the bar, and turn it at right angles to the length of the bar, or half way round; then cut off the top corners of the sheet and a wedge-shaped piece out of the middle of the top, that the sheet, in being brought with thumb and fingers through the saw-cut level with the top of the bar, may not be stopped by the screw-driver. If the ends of the top of the sheet are first flattened it will be more easily inserted, and when the screw-driver is withdrawn the foundation will be held firmly.

Distance-keepers.—As already stated, the combs are built by the bees at a distance of about ⅞ inch apart, and when moveable frames are used, some means of keeping this distance must be adopted. Mr. Abbott, the late Editor of the *B.B.J.*, introduced what are known as broad-shouldered frames, which have a projection on alternate ends of the frame, and thus keep the correct distance.

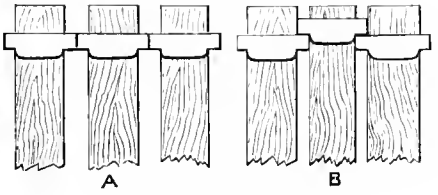


Broad-shouldered Frames.

Metal ends, which may be taken off at will, are also much used.



Metal ends.



W. B. C. Metal Ends.

But perhaps the simplest distance-keeper is the bell-staple, which is driven into alternate sides of the top bar near the end.

Dummy.—At times the bees of the swarm or stock are not able to cover all the combs the hive contains. When that is the case, a plain board to fit the hive is placed at the side of the combs covered by the bees, so that really the size of the hive is lessened by the use of the dummy. I always used dummies 1 5/16 inch thick, which fit closely except at the bottom, where a bee-space is left.

Dummy.

Kind of Hive.—Hives may be classed as—

1. Those in which the frames run from front to back.
2. Those in which the frames run from side to side.

The hive here described will be the former, with frames running from front to back.

Parts.—Floor-board.
Brood-chamber.
Supers.
Roof.

Floor-board.—The same as described in Article IV.

Brood-chamber.—If frames with 17-inch top bar are used the brood-chamber should be oblong, with double walls front and back. If the 15½-inch top bar is used

the hive should be square; the inside measurement from side to side should be 16 inches, to accommodate eleven frames.

Hive, showing Floor-board, Brood-chamber, Super, Roof.

(*To be continued.*)

CARNIOLANS.

[2239.] Seeing 'H. J.'s' opinion of Carniolans, No. 2229, *B.B.J.*, 11th inst., I hoped to have seen recorded in your issue of the 18th the experience of some others. I will now give mine, which I will confine to this season, although it had some little to do with them last year. In September or October last I received from Mr. Benton, of Laibach, six Carniolan queens. All arrived in good condition, and I was not kept waiting for them as I have been by English breeders and importers. I think it due to Mr. Benton to mention this, as about that time some reflection was cast by a writer in the *B.B.J.* on the *bona fides* of queen-exporters. These queens were purchased for five friends and myself. One I introduced to a strong stock of blacks belonging to a neighbour, whose bees are within twenty yards of mine. In passing her into the queen-cage (Alley's) I accidentally injured one of her wings. This stock wintered well, came out strong in the spring, and having an abundant supply of store required little or no feeding. A section crate was put on early in May, but little work was done in it. About the end of that month they swarmed and went back again. Two days after, passing the hive I noticed a small cluster of bees on the ground in front, and finding the queen among them I placed her on the alighting board, but the bees would not allow her to enter the hive. I then made a nucleus of three frames from the stock and put her into it. A few days later I found that the bees had destroyed her and raised four queen-cells, the old stock having fifteen. A day or two before these young queens hatched my Carniolans swarmed, and went into this hive. I removed the queen and about six frames of bees the next morning, and as the hive was still very full made another nucleus. This stock again swarmed, the owner hived them in a straw skep; not liking their quarters after staying two or three days they flew out and were lost. This left the stock so weak that no honey can be taken from them this season. The queen I reserved for my own use was introduced to the driven bees of five skeps, the lot only making a very small stock. Having occasion to examine the hive about a month later I found young Carniolan bees, and I believe the queen bred all through the winter, as some of my other queens did. At the end of April there being brood in nine frames, I placed another body-box under containing eleven frames of comb, putting those having the least in front, also put a crate of sections on top, hoping by this double means to prevent swarming. About a month after, looking through the upper storey, I found about twenty queen-cells, many containing eggs. These I destroyed; nine days after they swarmed and went into my neighbour's hive, as before noted. When removing them the next morning I purposed returning them to their hive, taking out a nucleus with some queen-cells and destroying the remainder; but finding a young queen in the hive I made a stock of the swarm, took out a nucleus with some queen-cells and destroyed all others. Some days later a second swarm came off, which was also hived; soon after a third came out. These I returned, removing one frame with queen-cells and cutting out all others; packed the bees in one body-box and put on sections. They had only used the under frames for drone-breeding; those that replaced the nucleus had not been touched, nor had the sections. From the nucleus I reared three queens and fertilised them on the Kohler system, so now have the old stock—two swarms and three nuclei from this one stock—but not a pound of honey in this abundant season. My bees are surrounded by meadows white with clover, and have lime-trees within easy reach. Another of these queens that just struggled through the winter with a very weak stock has lately made the best of her time in the way of increasing; and although sections were on, they preferred swarming to honey-gathering, a swarm coming off on 14th inst. Of the others one was lost through a mistake in her introduction, another perished in the winter, and the last I sent some distance and have not since heard of. My experience so far teaches me that Carniolans are utterly useless as honey-gatherers: they are wonderfully prolific. My second swarm, about a month old, has nine frames well filled with brood, but have not touched their sections. Although I left the mating of the queen to her own choice, having black, Ligurian, and Carniolan drones flying, I believe her progeny to be pure. I should be glad to know the opinion of some of our most experienced bee-keepers (not queen-dealers) as to the best kind of bees for honey gathering. Next season I hope to have the three breeds pure, and perhaps some of the crosses all 1889 queens, and started as near as possible on an equality; and if, as I think will be the case, our natives prove the best, I shall spend no more time or money on foreigners. Close by the side of those Carniolans I have a stock of hybrid Ligurians and a three-pound swarm of blacks, purchased the 30th of May, the former I have robbed of brood for nuclei, and also gave the blacks one frame from them. These stocks had each a 36 ½lb. the hybrids a 24 lb., and the blacks 21 lb. sections, all in a forward state, and I have taken about 12 lbs from each. I notice that the Carniolans instead of going in and out of the hive quickly like the others, hover about the entrance, even when carrying pollen. The accident to the queen's wing, which prevented her leaving with the swarm, strongly impresses on my mind the advisability of clipping queens' wings, and thus preventing the loss of swarms.—J. S.

CARNIOLAN BEES.

[2240.] Seeing 'H. J.'s' letter (2229) in this week's *Journal*, asking subscribers' opinions of Carniolan bees, I should like to say they are good honey gatherers, but given to swarming; I think either the queen's wings must be clipped or they must have spare cells removed after swarming. They certainly are easy to handle and winter well.—A. W. Leatham.

P.S.—I find no trouble in getting them to work in sections, if I give them 2 or 3 sections drawn out in the crate. I may say I have 24 hives, 13 of which are Carniolan and first cross; I wish they were all.

CARNIOLAN BEES AND SWARMING.

[2241.] 'H. J.,' in the *Journal* of July 11th, invites bee-keepers to give their experience on the above subject. Our experience has been much the same as his. We had two Carniolan stocks to begin this season with. The queen of one we bred last year from eggs of the other, which we procured from Mr. Frank Benton, of Carniola. They both wintered well, and early showed signs of breeding. Our native blacks seemed to be left behind. As they early showed signs of breeding, so also did they show signs of swarming. We checked them in the bud, as we thought, by making a swarm from the two, brood from one and bees from the other, and at the same time giving them three additional bars each. In a very short time, however, the hives were again full of bees, and were as intent on swarming as before. We made another swarm. The hive which had supplied the brood before, this time supplied the bees, and more bars were also added. Each hive now contained fifteen bars, and we thought that surely now the 'swarming craze' would be stopped. But no; we were soon compelled to make a swarm, this time, if you please, not from both, but from each one. We took four bars from each, and removed the stocks to entirely different stands, and so made two swarms. Were they content now? Well, one is, but the old imported queen is——, I do not know what to say, for one day, when we were neither of us about, she turned out with a swarm, and went on to the very top of one of the highest sycamores about. From the hive she left behind, another has issued, which also selected the same tree as the former, and almost the same bough. We were again not there, and in our absence it was secured, and placed in a straw skep. The skep, however, did not suit, for the following day it took its departure. The other hive threw off a small swarm, which changed its mind, if such can be, and returned home. Both hives are full of bees at this moment, but we think that swarming is surely over. Honey, I am sorry to say, has not turned out in proportion to swarming. Our natives have beaten them far away in honey-gathering. So much for Carniolans.—Moore and Tonge, *Mainwood Farm, Ringway, Cheshire, July 22nd.*

LEAKING BOTTLES.

[2242.] The trouble of leaking honey and all the stickiness may be prevented by using a bottle the same as the usual tie over, with a different neck instead of a lip; let the neck be straight, $\frac{5}{8}$ inch from the shoulder; have a metal top side lined with cork, the same that is used with pickle bottles—that will make them air-tight, dust-tight, and damp-tight.

I forgot to say there should be a cork cut to fit the neck of the bottle inside, $\frac{1}{2}$ inch thick; the kind may be seen on the Worcestershire pickles (Waters & Sons).—R. Siggery, *Leatherhead.*

SCREW-CAP BOTTLES LEAKING. Reply to (2231.)

[2243.] I guard against this by pouring half a teaspoonful of melted wax into the cap, letting it cool, and then screwing down tight. Though making quite safe, it does not prevent easy removal of cap when desired.—W. E. Burkitt, *Hon. Sec. and Expert W.B.K.A.*

MR. HENRY YATES.

[2244.] It was with the deepest regret I heard of the melancholy death of Mr. H. Yates. It is a great loss to bee-keeping, he being a judge of the strictest integrity, and his profession, that of an engineer, enabling him at a glance to see the advantages or disadvantages of appliances, and by his courtesy in pointing out the errors enabling their makers to improve them; he was also a good judge of honey, and would often make suggestions to beginners, so that they might improve their exhibits. Personally he was a joking man with those that knew him, but knew how to stop sooner than hurt the feelings of any one.—J. R. Truss, *Ufford Heath, Stamford.*

WASPS IN BAR-FRAME HIVE.

[2245.] From some cause which I cannot explain, unless it be due to the fact of our being compelled to remove the hive in which it is built, the wasps' nest is making very little progress. There is no alteration in the nest proper. Another layer is gradually enclosing it, and has been brought down to the depth of $1\frac{3}{4}$ in. In other respects it is the same.—C. C. Moore, 14 *Railway Street, Altrincham, July 22nd.*

THE ANCIENT USE OF HONEY.

[2246.] With reference to above, which appeared in April No. (paragraph 158) of your interesting *Journal*, I venture to make a few remarks, trusting you will be kind enough to insert them.

Now, I always understood Palestine is a land in which bees are very plentiful. If such be the case, it is more than probable the honey principally alluded to in the Bible, such as 'A land flowing with milk and honey, &c.,' was made by them, and, again, 'With honey out of the stony rock should I have satisfied thee;' but I think little light can be thrown on the subject.

I am not aware there is any absolute proof of that mentioned having been derived from bees. Amongst all the instances in which the word is used in Scripture there is only one where it distinctly points out it was procured from them, when Samson found the swarm in the carcass of the lion, Judges, xiv. 8; on the other hand there is still less to show that it was manufactured from dates. I know of but one passage where there is even a suggestion, and that only in the margin, 2 Chron. xxxi. 5.

Being in ignorance of the original version, I venture to remark, could the word have two significations?

I agree with Mr. Hooker in thinking the honey mentioned so frequently in the Old Testament was made by bees, but as regards that used for sacrificial purposes, one would think the Jewish doctors ought to be the best judges, especially as there is no Biblical proof as to how it was obtained, at least, so far as I know.

Now, I fancy there was no comb foundation in those days, therefore, the syrup of dates was probably used in its liquid state, consequently, when the word honeycomb is made use of it surely must mean what we call honey, as in 1 Sam. xiv. 27, when Jonathan dipped the end of his rod in a honeycomb; it is very unlikely he would have discovered anything but the genuine article dropping from the combs in such a place as a wood.

Probably there is much to be said for and against both theories, and I venture so far hoping to inspire others to follow my example.

Seeing no allusion to the subject in subsequent numbers, I thought it a pity to let it drop, as it appeared likely to do.—E. C. M. C.

WORK AND EXPERIENCE.

[2247.] Contraction as a System.—In the hands of the expert a system of contraction properly applied gives good results if everything is propitious. But the system is dangerous in the hands of the novice, and very many beginners will be injured by the 'all is not gold that glitters.'

Slat Honey Boards.—I have discarded slat honey boards. They are no good to keep the queen in her place below the surplus, and their meanness to get off and on their hive overbalances all their good points.

The Perforated Excluders are never used in my apiary after once trying them thoroughly, except to keep the queen out of the extracting supers. They are very useful in this place, but they are out of place when put under section cases.

A thoroughly good article of honey cannot be taken with the extractor from combs containing unsealed brood, for the reason that more or less of thin, raw nectar is likely to be stored for immediate use in close proximity to the brood. This thin, raw nectar is sure to injure the flavour and saving qualities of the honey with which it becomes mixed. For this reason I use the perforated excluder to keep the queen in her own apartment.

A Cheap and Easy Way to Hive Swarms.—Have the queen's wings clipped. Let the bees go through the motion of swarming, and have them to return on account of missing the queen. Now, at your leisure, remove all the frames of brood from the hive, shaking off nearly all the bees, and let them run into the hive, give them a set of empty combs or frames filled with foundation, and you have the entire swarm, with all stragglers hived on the old stand. The combs of brood, with the few adhering bees, are placed in a new hive, and given a new location in the apiary. The section cases or extracting supers, as the case may be, are given to the swarm immediately if an excluder is used, and if not I wait about three days before I put on the surplus.

This plan saves the heated rush of doing the work while the swarm is on the wing.—G. W. Demaree, *Christiansburg, Kentucky, U.S.A.* (*Canadian Honey Producer.*)

QUEENS.

[2248.] In this article I wish to give a bit of my experiences as regards introducing queens, rather than to point out any particular method for so doing.

In a practice of nearly twenty years many things have come under my observation which have been interesting, and have thrown light on an operation which has many times proven, not only to myself, but to multitudes of others, to be not always a successful one.

Heretofore the loss of the queen has been charged mainly to the bees rather than to the queen, parties even being so rash and provoked as to crush a ball of bees enclosing a queen, under their feet, when in reality the queen was the one to blame. Many queens would never be molested in the least by the bees if they would behave themselves as they did in the hive they were formerly in; and I venture the prediction that when we arrive at a plan that will always place the queen with strange bees in the same quiet condition she was in while in the hive in which she was reared, we shall be successful every time. To substantiate this position, I will give some of my experience in the matter.

Some years ago I had a queen which began failing during the forepart of the season. Wishing to replace her, I went to a nucleus and took out their queen, which had been laying about a week; then going to the colony having the failing queen, I removed her and placed this young queen on the combs instead of the old one. She immediately commenced to 'peep,' just as a virgin queen does when there are rivals in the cells in a hive calculating to send out an after-swarm. To this the bees paid no attention, but came to her with the intention of feeding her, to all appearances; but instead of taking food offered by them, she put out her foot and struck at them, or laid hold of their heads with her feet, and continued 'peeping.' She passed around among the bees, 'peeping' at intervals for about five minutes, I should judge (I watching all the while), when she came to a young bee just hatched, all white and fuzzy. She immediately uttered a short 'peep' and then clinched the little thing, and stung it so it curled up and died in an instant. At this the bees became exasperated, and showed signs of hostility for the first time, they now beginning to lay hold of the queen for the first time, as far as I had noticed.

With a little smoke I dispersed them and still continued to watch. In about fifteen minutes she stung and killed at least a half dozen of these young bees, and was seized each time by the bees, but I as often dispersed them with smoke; at all other times they were ready to feed her and treat her as they did their old queen. Once or twice she took food of them, but, as a rule, struck at them with her feet when they offered her food. I closed the hive and left them then.

Upon looking the next day I found queen-cells started, and supposed her dead; but in about two weeks, or such a matter, they cast a swarm, and, lo! there was my queen running around in front of the hive, for her wings were clipped. I opened the hive, but found no eggs or brood (except sealed brood), cut off the queen-cells, and returned the bees, upon which she commenced laying, and made a fine queen. I have had several such cases since, yet none quite as persistent as was this queen.

Again, I have had queens which the bees treated as they would their own queen, but they would not stay in the hive at all: they would run out at the entrance, often followed by a few anxious bees which would feed them and keep them alive. I had one out thus till I had put in another queen, and she had begun to lay when I found the first under the bottom-board of the hive with a few bees with her.

Thus many facts in my experience go to prove that the queen has more to do with the loss sustained in introducing than the bees. Well, says one, 'If this is so, how can I remedy it?'

The plan I have lately adopted is this:—Make a cage out of wire-cloth, having about sixteen meshes to the inch, large enough so that it will cover some honey and quite a little hatching brood, by cutting little squares out of each corner, and then bending the sides up at right angles, so as to form a bottomless box, as it were.

Remove the queen you wish to supersede, shake the bees from the comb, and place your queen on it where there is some honey and hatching bees, and then place the cage over it, pressing the edges of the wire-cloth into the comb till the cage does not project beyond the surface of the comb more than half of an inch.

Hang the comb in the hive, leaving three-fourths of an inch between it and its fellows, so that the bees can go all around the cage.

In a few hours, or the next day, open the hive, and if the queen is reconciled to the strange colony, she will be quiet, and the bees quiet on the cage. When you find it thus, it is generally safe to lift the cage, when she will go quietly among the bees the same as she would have done in her own hive.

The presence of the young bees with her, which have hatched from the brood enclosed within the cage, has much to do in expediting matters and reconciling the bees and queens.

If on the contrary the queen is found running around, and the bees are biting at the cage, do not let the queen out till such conditions cease to exist.

The above are the conclusions which I have arrived at, which may not be entirely correct: still I believe them to be nearly so in the main. I have introduced hundreds of queens as above, and rarely, if ever, lost one.—G. M. Doolittle, *Borodino, N.Y.* (*American Rural Home*).

Echoes from the Hives.

Poncy, 15th July.—The honey-harvest here is over, and it is not up to the average. At the time sainfoin was coming into flower, and was just beginning to yield nectar, a heavy hail-storm laid it to the ground, and the flow ceased. I have always remarked that when sainfoin is beaten down by rain or hail, the flow of nectar at once ceases.—J. Descoulayes.

Kingston-on-Thames, July 17th.—We are having a good time of it here. Honey coming in fast, sections well filled, weather all that can be desired, warm showers helping on the flow of nectar. Bees strong on the wing, also in numbers. The summer of 1889 will doubtless be remembered with gratitude to the Giver of all. Have not seen one wasp yet this year.—H. CRAWLEY, 9 *Canbury Park Road, Kingston.*

Honey Cott, Weston, Leamington.—In the midst of the honey-season, what changes we do have in the weather! For the last ten days or more, it has been showery at times, also very dull, so that there has been nothing done by the bees. Yesterday we had a heavy thunderstorm with hail. Last night the temperature was down to 44°. Be thankful for the good weather we have had, and honey we have got; we certainly should be, though if the last fortnight had been as good as the preceding one, it would have made a lot of difference to the yield, as there is an abundance of white clover now, and, through the cool weather, no honey to be got from it. I find where I tiered up on top sections they are the best finished, while where I put crates under, and the weather changed so soon after, that where they have sealed up sections they are neither so well filled, or nearly so heavy, as those put on top. In putting them under, if the weather had continued good, that would have been best; while, as the weather has been indifferent, those placed on top and the underneath ones have been finished best.—JOHN WALTON.

Kingsland, Herefordshire.—I see in to-day's *Journal* that there are very few wasps about. They are very numerous here, there being over thirty nests along the highroad not more than half a mile.—A. WARD.

NOTICES TO CORRESPONDENTS & INQUIRERS

E. J. S.—*Top Bar.*—The best size for top bar is seventeen inches.

JUSTICE.—*Law on Bees.*—The matter being very complicated, it would be preferable to consult a solicitor; and if you are of the same opinion, we should be obliged by being informed of the result.

C. N. P.—*Young Queen.*—We should prefer to rear a fresh one, and would advise you to examine hive, say on fourth or fifth day, to observe condition as to any sealed cells being present. If found, remove them; this would ensure all queens being raised from the selected eggs.

J. KEARLEY.—*Nuclei.*—It is not too late, but quite late enough to form nuclei. Purchased queens would be quickest, but you ought to be able to raise your own if the weather keeps favourable. If possible, raise a few just a day or two behind the first in case of accidents.

R. AULD.—*Extracting.*—It is a pity the brood is in upper box, but we think you can get some honey. Why not make two colonies of them by simply putting the one box on a new stand, giving present queen to that lot, and let the others raise a fresh one?

MIDDLESEX.—1. *Finding Queen.*—It is not always easy to 'spot' her majesty. Like another Queen we know, the queen-bee does not needlessly expose herself to the vulgar gaze. 2. *New Cell.*—This appears from your description to be a discarded queen-cell. 3. *Extracting.*—You cannot readily get the honey out without an extractor, and at the same time save the combs. Can you not borrow one? 4. *Honey.*—Sample to hand; from your description we should say it is principally lime honey. 5. *Re-queening.*—Your proposed plan will do. 6. *Sections.*—Knowledge which comes only with practice associated with a good neighbourhood is essential. The bricks and mortar in your neighbourhood are against you. Why not write Mr. Webster as to your last query? We shall be pleased to receive photo.

E. PLATER.—*Kent Association.*—Please refer to Mr. Jesse Garratt, Meopham, Hon. Sec. of the Kent Bee-keepers' Association, who will be happy to furnish you with the necessary information.

H. T. R.—Raitt's honey press, manufactured by Meadows.

RAW HAND.—*Removing Sections.*—We sympathise deeply with you in your various tribulations, and we are afraid, in certain ways, painful ones. You have evidently got an excellent strain of bees, who object to honey laying around. We commend them for their economy. Recollect for the future that having got your honey, it is necessary to take steps to keep it. You will find it a good plan to put all sections in a box immediately they are removed from the hive; that is, if you take them singly. If you take the whole rack off, then convey that at once to some safe place. We strongly approve of the discipline enforced by your better half, and long may she be spared to preside over your domestic felicities. 'Those books' do, we freely admit, sometimes give directions which do not meet every case. Our departed friend, Raynor, was a great advocate of the carbolised cloth, and in his hands it was very efficient. Somehow we fancy you have kept considerably in advance of the wants of the bees as regards room in the sections. Had you done otherwise, you would most likely have been troubled with swarming. More contrary things than bees we never knew, and, as our American cousins would put it, they fill the bill for pure cussedness.

E. C. M. C.—1. *Price of Honey.*—See Mr. McNally's article on this subject in this issue. 2. *Sections.*—Do your dividers come up high enough? there ought to be a fair bee-space only open.

G. H. S.—1. *Heather.*—Sample enclosed is not the true heather, but your bees will doubtless busy themselves upon it. 2. *Bees.*—These are hybrids.

A. B.—1. *Ants.*—These insects are not generally injurious to bees. One or two cases have occurred, the bees being very weak, where the ants have gained a mastery over bees. A broad band of chalk round the legs is said to prevent bees from climbing up. So would a band of tar, or a rag bound round and wetted with oil. We would recommend you to take the cap off in three weeks time. 2. *Books.*—*Modern Bee-keeping* (6*d.*) or Cowan's *Guide Book* (1*s.* 6*d.*).

H. R.—*Nuclei.*—You cannot do better than use your ordinary hives, and full-sized frames, for raising queens. Small hives and frames, such as you describe, are practically useless. The divisional, or twin frame, is not Mr. Cheshire's invention. His *Practical Bee-keeping* was published in 1876, and in *Gleanings* for 1874, page 29, Mr. C. Dadant, in a letter dated 4th February, 1874, describes and illustrates the same thing, and says he has used it eight years, so that the credit of the invention is Mr. Dadant's, and the date 1866, or ten years before Cheshire describes it. We know no one who now uses it, and it is universally considered that queens reared in full hives are better than those raised in such small hives.

PHENOL.—*Foul Brood.*—It is a case of 'foul brood.'

H. B.—*Moving Bees a Short Distance.*—You must on no account move the bees so short a distance. Cannot you move them, say, two miles away for a fortnight, and then bring them back to the position required?

J. CLAPPERTON.—*Bees hanging out.*—We should take it to the heather, and transfer there. If you do not get any sections from it, it will be in fine condition for next season, but very likely will 'go up' in sections after transferring.

E. G.—*Moulding Wax.*—Melt in vessel surrounded with water, pour into moulds, which cover up warmly, and allow to cool gradually.

A. WARD.—*Rendering old Combs into Wax.*—Either use a Gerster wax extractor, or tie combs in strainer cloth, and weight same so that they will remain at bottom of copper of water, bring to the boil, and then allow gradually to cool. The wax will rise and float on top of water; take, when cold, off in a cake.

F. J. L.—*Artificial Swarm.*—We could not tell whether the swarm did go back or not, except by examination directly after, but we should judge they did. No doubt one of the queens hatched flew out for fertilisation. A number of bees went out with her—a not unusual occurrence—and then returned to the hive, hence the fact of the cells being torn down.

C. N. P.—*Queen Rearing.*—You must have overlooked an egg just hatched. This would account for a queen being on comb on the eleventh day, as queens frequently issue on the fifteenth day in warm weather. Virgin queens are always smaller than after fertilisation.

R. YOUNG, *New Zealand.*—*Clover Honey.*—The north of England and Scotchmen will tell you that heather honey is the finest. The bee-keeper who keeps his bees on chalk soil will tell you sainfoin honey is the best, and the one who raises his boney among white clover fields, says, White clover honey for him. Who is to judge? 2. *Judging Honey.*—Colour (amber), clearness, heavy gravity, get up of package, flavour. Colour, gravity, and flavour would with us rank first, after clearness, and last, get up of packages.

C. S. J.—*Honey from Portugal Laurels and Rhododendrons.*—Our actual experience of Portugal laurel nectar is, that it is not poisonous if mixed with other honey; but we would not advise its being used for domestic purposes, if a quantity of it has been gathered from this source alone and unmixed with other nectar. Honey is rarely gathered from rhododendrons.

QUERY.—A month ago I made an artificial swarm from a strong hive to prevent their swarming whilst I was away. Having got everything ready, I took the frame with the queen and two others well filled with brood and some honey to the new hive, placing frames with worked-out comb between each, and covered them up.

I then put the new hive on the old stand, first moving the old one about five yards off. The new hive soon became quite crowded with the workers coming back to their old position. Looking into the parent stock a week afterwards I found everything satisfactory, about six or eight queen-cells well covered over.

On the Thursday following (just under a fortnight after the alterations) a swarm issued which was duly hived, but unfortunately I was not home; the skep was left on the ground, and when I returned they had gone. Can any one tell me if they returned to the hive or went off somewhere else? Looking a few days afterwards I found queen-cells all broken open. That was ten days ago; since then I had looked several times, but they do not seem inclined to build any more. Now, can I find a queen? Will some one kindly say what will be best to do, as they will now begin to decrease rapidly, not having any more brood to come out?—F. J. L.

SHOWS TO COME.

BEES, HIVES, HONEY, ETC.

July 31st and August 1st.—Glamorganshire General Agricultural Society at Treorky, Rhondda Valley. Secretary, D. P. Davies, Commercial Street, Aberdare.

August 6th, 7th, and 8th.—Yorkshire Agricultural Society, at Hull. Secretary, Marshall Stevenson, York.

NOTTS ASSOCIATION.

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Aug. 5.—Beeston.
Aug. 15.—Woodborough and Epperstone.
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EDITOR OF THE 'BRITISH BEE JOURNAL.'

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Editorial, Notices, &c.

REMOVING SUPERS FROM HIVES.

One of the, if not the, most pleasing duties of the bee-keeper is the removal of supers or surplus compartments from off the hives, when filled with, perhaps, the snow-white combs stored with white clover honey, or to some the much handsomer saffron-coloured ones laden with the nectar obtained from its relation the sainfoin; other bee-keepers away in the far north experiencing the same delights when later on in the season they take possession of the beautifully white, aromatical, and strongly flavoured sections obtained from the purple heather. Each of these, when not 'well up' in the most easy and simple methods used in depriving the bees of these rich stores, experiencing at time of removal a not too confident reliance upon his own ability in completing these removals without obtaining a punishment from the denizens of the hive, more or less in severity according to the temper of the colony, or the skill or means adopted in such a manipulation. To the novice it is often with fear and trembling that he attempts the removal of a pile of section racks from off a strong colony, thus at the offset, we might almost say, courting an ill-deserved punishment, which, after a little experience of the knowledge governing a colony's method of protecting its hive, and also the best means used in the subjugation of such, would never be received or even thought of.

The bee-keeper attacks a hive at its most vulnerable point (wise bee-keeper!), such being that farthest removed from the entrance, where a bee naturally expects an enemy, and for the time being the bee-keeper, from a bee's point of view, takes the part of such. When this part, the top, of a hive is exposed upon a fine day the bees presented to view are chiefly the young ones, those inexperienced in the art of using their stings and are also the most easy of subjection for reason of their inexperience. A young bee rarely, if ever, attacks; it is the old warriors who with partially raised wings and heads continually shifting sharply from side to side, who will with such eager haste endeavour to thrust their stings into the bee-keeper's cuticle and die when such is effected.

It is our purpose now not to conjure up ogres in the shape of bee-stings for the novice, but to endeavour to allay those unnecessary fears which every novice, and occasionally the more experienced bee-keeper, feels when disturbing a very strong and prosperous colony. We may take it for granted that a fairly vicious colony usually makes the best returns in the shape of honey. We do not mean those who without the slightest provocation will dart out from the entrance and plant their stings in one's face, as these we always weed out from our apiary, but a colony always on the alert for the protection of their stores, those which our American cousins designate as having plenty of '*vim*' in them, are the chosen ones in our apiary, so that it is necessary that we use the most improved methods, and also the most effectual means, of subjugation known.

This season we have had hives 'tiered up' with five racks of sections and full from top to bottom with bees. Such a citadel seems to present quite an unimpregnable fortress, and yet, without veil or gloves, often with our shirt-sleeves turned up to the elbows have we removed every rack and come off scatheless. It is this easy and effectual method which we now are about to present to our readers that they, like ourselves, may look upon 'taking off supers' as a pleasurable occupation, a thing to be longed for during the weary months of winter, and hailed with delight when it does occur.

We will suppose, for example, that a hive is 'tiered up' with three racks of sections, the top one of which is finished and we wish to remove same, and also insert an empty one under the other two. On a fine mid-day we provide ourselves with three carbolised cloths and a cold chisel or screw-driver. Taking off the roof of the hive we turn up the edge of the quilt and roll it back, while so doing we drag one of the carbolised cloths—which has two pieces of tape tacked on each of the two top corners, into which we have hitched our thumbs—over the space uncovered. The bees have thus never been exposed and know nothing whatever about the attack until the subjugator is at work on them; they immediately run out of the top rack and commence to gorge from the uncapped sections underneath. Now insert the end of the screwdriver and prise the rack up until it is loose, wait a few seconds, and then quickly lift it off, standing it upon its edge with the carbolised cloth towards the wind, if there is any. At once lay one of the other cloths upon the next rack and then prise the lower one from the frames; do this gradually, and notice that you are not lifting any of the frames with the rack, as, if so, the bees will instantly become irritated. Where the movement of the rack moves any of the frames a finger should be pressed firmly upon the offending frame and the rack raised at the same time; this will loosen the attachments. When so loosened allow a few seconds to elapse and then lift the two racks bodily, rest them on the ground or on a table near, and quickly place the empty rack on top of frames, and replace the two just removed; remove carbolised cloth substituting the quilts for same. The job is done in three minutes and hive covered up even before the bees in lower part, or body box, are even aware of the change.

We advised having three cloths; the third one will be found to be exceedingly handy to drive any bees down that may have come up on top of frames before placing on empty rack.

We must now turn our attention to the rack of sec-

tions which were first removed, and which we advised to be placed with the carbolised cloth towards the wind. To many this caution seems of little use, but we find this one of the, if not the most important 'tips' of the whole. Upon taking off a rack of sections, no matter how carefully done, a certain number of bees will sure to be left in it; these, upon being separated from the hive, will commence to attack the cappings of the honey cells, gnawing little holes through, and so marring their appearance entirely. Now, if we place the rack with the carbolised cloth towards the wind a current of air passes through it, and then through the spaces between the sections, carrying with it the vapour of carbolic acid, so driving out most of the bees or keeping those which do remain in continually on the move. Bear in mind that wherever a cluster of bees congregate between the sections after removal from hive just at the point of congregation will the cappings be damaged. Now remove each of the sections into a clean rack or tray, brushing the few remaining bees off with a single feather from the wing of some large bird; this will be found much less irritating to the bees than either a brush or the whole wing of a bird, it is also more easily handled. When honey is coming in plentifully the emptying of section racks can take place by the side of the hive in the open air, but later in the season it must be taken indoors, preferably in a room where the windows open outwards, so as to allow of the escape of the few remaining bees on the sections.

We cannot understand our American cousins taking off section racks and allowing them to remain for a considerable time before entirely clearing out the bees, their losses in this particular must be considerable from perforated cappings.

Nothing is so effective as the carbolised cloth in the removal of sections. A smoker or fumigator is simply nowhere by the side of it. With a smoker or fumigator the bees in just one part of the super only are being subjugated, but with the cloth the bees in each interstice are receiving their share of subjugation, whilst they are driven out so thoroughly as practically to leave none behind to clear out afterwards.

USEFUL HINTS.

Weather.—The continued low temperature has been very trying to those who were anxious to finish late sections. Several nights the thermometer has registered as low as 44°, which means a general desertion of sections having only thin coverings. The wise ones would, with the prospect of a cold night before them, run round their apiary and place an extra quilt, or even two, on their sections.

Sections.—These should be removed as fast as they are finished. No plan is equal to the carbolised cloth, only do not be over slow about it. Have handy a broad chisel to prise up the rack; remove it with a twisting motion. Spread a carbolised cloth (one acid to twenty water) over the frames, carry the rack inside a room, remove completed ones, and return the partly finished for completion; insert fresh sections round the outside to fill up; if not filled they may be built out, and if carefully stored will be valuable next spring. They should be fumigated with sulphur to keep the wax-moth at a distance, and should then be wrapped in paper. Recently we read that newspapers were much disliked by all kinds of moths, and that if placed below carpets would repel the carpet moth. Some two years since having plenty of newspapers on hand, we used these to envelop our spare combs and built-out sections, and although the neighbourhood was overrun by wax-moth not one got to the combs, although owing to pressure of other affairs we omitted the fumigation. It is the oil in the printer's ink that is unpleasant. Most of us humans find it is the *acid* we don't like.

Extracting.—This should be taken in hand at once, firstly to give space in the brood-nest for plenty of brood to be raised so that they may hatch in September, and thus provide the colony with a strong reinforcement of young bees that will be just of the right age to carry the colony into winter quarters in the best possible condition. The general cleaning up of the combs by the bees will excite greater egg production. Secondly, because it will enable the bee-keeper to commence feeding in good time, in fact, as soon as the ingathering of honey ceases. Thirdly, the honey will be secured before it becomes so thick as to be very troublesome to get out of the combs. We do not approve of the common practice of removing every ounce of honey that can be got, but to those who adopt this plan we would just say that immediate feeding is frequently imperative,—not very fast it is true, but unless food *continues* to come in the queen will not lay to the extent that is essential to the well-doing of the colony next spring. From this date until the beginning of October is the period that controls the fate of many a stock that at present seems quite safe.

Young Queens.—The earliest opportunity should be made use of to ascertain that these are duly fertilised, and properly assuming their duties at the head of the colony. An examination in the evening will be found most suitable *if* the temperature is not too low.

Casts.—These may be helped with a frame or two, having sealed stores of honey and pollen, given them now. Frequently when extracting we come across a frame partially filled that we scarcely like to leave untouched, and, on the other hand, rather demur giving so much back to the stock. This will be just the thing for a cast, and aided by subsequent care in feeding, will enable the small lot to come out well in the spring.

Heather.—This, though an unknown quantity to most of us, is the *pièce de resistance* of our Yorkshire and Scotch friends, and we trust to hear of tons of nectar being gathered therefrom. But, alas! as we write we hear that Aberdeenshire was favoured with a a *snow-storm* a day or two since. Still, we hope this did not extend far, and will not be repeated.

Water.—This season has not been so dry as some; still, it is well to have convenient drinking places for our bees always *in situ*. Our little friends get used to them, and they have no difficulty then in obtaining this most necessary article. Pieces of brick or tile placed in the water are much appreciated as convenient sipping grounds; in fact the bees prefer having to, as it were, lick it up where the sun has warmed it rather than to drink it up at the brink of the water, possibly on account of the greater safety from the risk of drowning.

Condemned Bees.—Early arrangements should be made to secure these, as the stocks in skeps will but slightly, if at all, increase in weight after this time. In order to build them up well before winter, every day is of importance. If any doubt exists as to the suitability of the queens, we would unhesitatingly say, introduce an imported queen, either Italian or Carniolan, at the time of hiving the condemned bees. Frames fresh from the extractor would be a useful treat to them, and would set them on busy at arranging their household affairs. Condemned bees must be fed daily until they have their necessary winter supply stored; gently but regularly at first, and about the third week in September at the latest give them their syrup as fast as they will take it. Beware of foul-broody lots. These should be left to the tender mercies of the sulphur-pit, without the slightest compunction on the part of the most enthusiastic bee-keeper; but as a precaution we would strongly urge the use of medicated syrup, as prescribed in Cowan's *Guide*.

Purchased Queens.—When these are required, orders should be placed at once in order to prevent disappointment, as sometimes the Carniolan district is visited by severe weather sufficiently early to prevent

the dispatch of queens from that locality in time for them to arrive here in time to be introduced late this autumn. Nothing is gained, but everything risked, by delay in this and all matters connected with bee-keeping.

WINDSOR EXHIBITION—BEE DEPARTMENT.

Judges' Report.

The bee season of 1889, from its marked contrast to that of last year, has afforded to bee-keepers a favourable opportunity for proving the superiority of the modern system of bee-keeping over that followed in years gone by.

Had so disastrous a season as that of 1888 occurred prior to the establishment of the British Bee-keepers' Association and its kindred offshoots throughout the country, we are probably within the mark in asserting that not more than 20 per cent of the bees in the United Kingdom would have survived it. As it is, the loss since last year has been enormous, but in the great majority of cases it has arisen from causes quite plain to, and easily guarded against by, those who have made themselves acquainted with the principles of bee management on the modern system.

Nothing could have more clearly demonstrated the progress made in the methods of managing bees than the fine display of honey shown at Windsor. Owing to the early date, so far as honey is concerned, on which the Show was held, the quantity of honey staged was as remarkable for its extent and completeness as for the rapidity with which it was gathered by the bees and prepared for exhibition. The number of honey exhibits more than quadrupled those of last year, and the quality was very good, especially in the class for extracted honey. The class for 1-lb. sections of comb honey was also fairly well filled, but the general appearance was not quite so attractive as we could have wished, owing to the fact that the larger portion of the exhibits were from sainfoin districts; and comb honey from this source, though excellent in flavour, has a yellow look not altogether pleasing compared with the delicate, creamy white of clover sections.

The occasion was made memorable by the visit of Her Majesty the Queen to the Bee Department, accompanied by the Prince of Wales and several members of the Royal Family. Her Majesty was received by the Baroness Burdett-Coutts, President of the British Bee-keepers' Association, and several members of the Committee of that body; and it must have been gratifying to these gentlemen when their Chairman was enabled to offer on behalf of the Association for Her Majesty's acceptance a fine sample of this season's honey in the form of a device from the prize collection containing the initials of the Royal Agricultural Society, together with the words 'Jubilee 89' worked by the bees in honeycomb, and filled with beautiful sainfoin honey. The novel present was accepted by Her Majesty, who seemed much interested and pleased with what she saw in the bee department.

Turning to the Bee Appliances there was a falling off in the number of entries compared with Nottingham, only ninety-six exhibits being staged against 123 at the latter place. Last year there were no less than ten entries in the class for collections of hives and appliances, and these in themselves made quite an imposing and effective display. At Windsor, however, only four collections were staged, the difference leading us to suppose there must be some objection on the part of exhibitors to the strict lines laid down in the schedule for their guidance. If this be so, it is worth considering whether something cannot be done in future to encourage a larger entry in this important class.

We were pleased to noto a welcome change in the quality of the goods in Classes 80 and 81, for hives not to exceed 15*s.* and 10*s.* 6*d.* respectively. Last year hives were staged in these classes worth far more than the value placed upon them, and the judges did not fail to take note of the fact. This year we had no fault to find in this respect, and it gives us pleasure to say that it was at no sacrifice of efficiency, some of the hives shown being superior for practical work to those shown at Nottingham. On the whole the appliance department, though not so well filled as last year, gave evidence that manufacturers are ever on the look-out for anything tending to facilitate work among bees, and excellent appliances for every purpose connected with bee-culture can now be had at prices within the reach of all.

We cannot close this report without drawing the attention of farmers generally, or such as take an interest in bees, to the lessons taught by the past season. It has been conclusively shown that bees can be kept alive and in good health, no matter how bad the season may be, by any one who will give them a tithe of the care and attention required by any other kind of live stock. On the other hand, it has been just as conclusively proved that bees if left to shift for themselves at a time when no natural food can be had, will as surely die as sheep or other cattle would if left foodless and uncared for. When this simple fact is recognised and intelligently acted upon, the agriculturist will have as little dread of a bad bee season as the most skilled bee-keeper of the day.

(Signed) W. Broughton Carr.
Walter Martin.
William Bush.

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

Committee Meeting, held at 105 Jermyn Street, on Wednesday, July 24th. Present:—The Hon. and Rev. H. Bligh (in the chair), Rev. Dr. Bartrum, Captain Bush, R.N., P. P. Hasluck, Captain Campbell, with Miss Eyton (Shropshire), Mr. McClure (Lancashire and Cheshire), A. Watkins (Hereford), Rev. W. E. Burkitt (Wiltshire), *ex officio*, and the Secretary.

The minutes of the last meeting were read and confirmed. The statement of accounts for the month ending June 30th having been considered and adopted, it was resolved, 'That the prizes awarded, and sale of goods effected, by the Association at the Windsor and Horsham shows be paid, and that all other accounts relating to these exhibitions be considered by the Finance Committee in due course, and that they be empowered after examination to pay the same.'

A letter was read from Mr. Garratt (who was unable to be present) giving notice to move at the next meeting that it is desirable to correspond with the Bath and West of England Agricultural Society, with the view of arranging for an exhibition of honey, hives, &c., at their annual exhibition to be held at Rochester next year.

Resolved, 'That Saturday, September 14th, be fixed as the day for closing the entries for prize pamphlet relating to County Associations.'

On the recommendation of the County Representatives, it was resolved to prepare a printed form for certificates of character required by third-class experts, the same to be signed by a person holding a responsible position, and countersigned by the affiliated Association. It was also resolved, 'That in future all third-class certificates be signed by the Chairman of the Committee meeting, and countersigned by the Secretary.'

The prize schedule for the bee department of the Royal Agricultural Society of 1890 was considered. After some discussion, it was resolved 'That the Secretary do send a copy of the prize schedule of the Windsor show to each member of the Committee for suggestions thereon previous to the date of the next Committee meeting, which takes place on Tuesday, September 17th.'

The Quarterly Conversazione took place on Wednesday July 24th, at 6 p.m., at the offices of the Royal Society for the Prevention of Cruelty to Animals, when, amongst the audience present, were the Hon. and Rev. Henry Bligh, the Rev. Dr. Bartrum, the Rev. W. E. Burkitt, Mr. Grimshaw, Mr. T. B. Blow, Mr. Alexander, Captain Campbell, Miss Eyton, Mr. Harveyson, Mr. Meggy, Mr. Hooker, Mr. Somerville, Mr. Watkins, Mr. Burneston, Mr. Soar, Mr. Henderson, &c.

Mr. Grimshaw presided, and, in opening the proceedings, expressed his regret that the meeting was not to have the pleasure of Mr. Cowan's company that evening. It had been expected that he would be present, but unfortunately that was not possible. He (the Chairman) could not help making allusion to the great loss sustained by the B.B.K.A. in the death of Mr. Henry Yates, of Grantham, who had acted for the first time as a judge at the recent show. His adjudications had given great satisfaction, and his position was one of great influence. He (the Chairman) felt that the meeting ought to place on record its regret at the untimely loss suffered by the bee-keeping world, and express its condolence with the family of the deceased gentleman, who, overtaken by a fit of mental depression, came to a sad end whilst in that state. There could be no doubt that the members had an advantage that evening which ought not to be lost. Mr. Blow had just returned from Paris, and anything he could tell them about bee-keepers and bee-keeping on the other side of the water would, no doubt, be highly interesting. He (the Chairman) was curious to know whether the same good fellowship existed among apiculturists in France as in England, and what progress had been made in the industry—whether the French were more or less advanced than his own countrymen.

Mr. Blow was sorry that he had not received beforehand some notice of the Chairman's request. As it was he felt scarcely prepared to give much information. He had not had an opportunity of visiting the country districts of France, having been detained in Paris by his duties at the exhibition. Nevertheless he hoped during the next month or two to attend the meetings of several bee-keeping Associations from whom he had received invitations, and after a turn in the country for that purpose he would be able to speak with better knowledge and judgment. He had carefully looked over the exhibits at the Exhibition, and thought there could not be a doubt that the French were a long way behind the British in all branches of bee-keeping, always excepting the production of wax, in which they most certainly excelled. At present it was almost a novelty to see section honey, and it was not until the last two or three years that any section honey had been produced in France. He imagined that even now only a very few thousands of sections were in use throughout the country. A large dealer (who in England would be considered as in a small way of business) had spoken to him of the purchase of 25,000 sections, and seemed to look upon that as an enormous quantity. That fact in itself was a good index of the number used in France. No doubt some districts were highly favoured by nature, and if bee-culture were carried on there on right lines English bee-keepers would have to look to their laurels. At Gatinais immense quantities of sanfoin, and vegitation of that sort, were cultivated, and it was from that district that the celebrated Gatinais honey was produced. It was quite pure and almost white in colour, and was very fine honey indeed. The bees were kept principally in skeps, but there were bar-frame hives to be met with. He believed the extractor was a good deal in use, but the old-fashioned plan was still largely in vogue of crushing up the combs, though it was done more carefully than used to be the practice in England. It was more than probable that if the Gatinais bee-keepers went in for advanced bee-culture and used sections largely an immense quantity of honey would be produced, and find its way to English ports. That was the more likely because of a difficulty in sending it to Paris owing to the *octroi* duty, which was a municipal tax, and nothing to do with the Customs. Wax, for instance, bore a high *octroi* duty. Therefore if the French Provincials could not get a ready and profitable sale in their own country the English markets would be flooded with their honey, as was now the case with their butter and eggs. There was a large district in the department of Landes entirely covered with heather, which produced a large quantity of honey, but, strange to say, there was no sale for heather honey. It was a complete drug in the market, and fetched the lowest price; in fact, it was on the same level as buckwheat honey. He had seen a considerable quantity of it from the district mentioned, and found it very similar to the Scotch heather honey. There was no doubt that if the Landes bee-keepers became advanced they could raise a very large supply of honey, which would find a ready sale on the English side of the water. Many of them were, however, quite primitive in their appliances, hives being often constructed only of strips of wood woven together and plastered over with mud, the whole thing being in the shape of a bell. There, as in other parts, the plan of sulphuring the bees was adopted. He attended a meeting of French bee-keepers last Sunday, at which a clergyman was present from Burgundy who kept from 800 to 1000 stocks, who was an advanced bee-keeper, and had taken bee-keeping into a region where it was almost unknown. That gentleman had created a market for his honey, and had no difficulty in selling the over produce of his hives. One disadvantage in France was that every bee-keeper had a standard frame of his own. The measurements varied from dimensions more than double the ordinary English size to something less than such frames. At one meeting there was a discussion about adopting the standard frame, but no conclusion was arrived at, the notions of the bee-keepers present being anything but unanimous. Another matter which arose for discussion was, whether the French were able to compete with the American bee-keepers as regards prices in raising honey. He thereupon suggested that as the Americans were able to transport quickly any quantity of extracted honey, the French bee-keeper should raise honey in sections for sale and exportation, which the Americans could not do to any extent. He had seen some finely finished bars of honey, and if the French bee-keepers could produce sections equally well finished, they could compete in any market. Without doubt English bee-keepers had not much to fear at present from their French brethren, whose ideas seemed very crude. Their journals were also backward. The principal one, with the largest circulation, *L'Apiculteur*, was a strong advocate for fixed-comb sections. It seemed marvellous to find a journal of the present day expressing such opinions. He thought the Exhibition well worthy a visit, and strongly advised all present to go and see it, although there was nothing much to learn in the way of bee-keeping there. In the Mexican department there was a man who had invented a hive which he described as the most wonderful bee-hive in the world. He (the speaker), in company with Mr. Cowan and M. Bertrand, had inspected the contrivance, the author of which was, he thought, a little deranged. It was a hive that must not be altered, nothing must be added to or taken from it, because it was perfect, and it was said that the Mexican Government had adopted it as a model. The owner contended that it was the only hive built on natural principles, that it was the only hive in which the bees would not object to the combs being taken away, and in which they never sting, and did not require any smoke either. However, some manipulation was attempted in his (the speaker's) presence, which was soon followed by the bees clearing the terrace of himself, the Mexican, and all the people there. The patent was for sale, and, according to the

owner, would probably make someone's fortune. Before concluding, he would like to say that Mr. Henderson had asked him to show the mortice lock he held in his hand, which had been converted into a bees' nest. The bees could be seen there in all stages, from the egg to the almost hatched bee, and in most cases were alive. The lock had, he need hardly say, not been in use for some time, and the means of entrance and exit was through the keyhole.

Mr. Hooker remembered an instance in which he had considerable difficulty in turning the key in a similar lock, when, after a few moments, he saw a bee come out of the keyhole in a damaged condition.

In reply to Captain Campbell, Mr. Blow said that the French authorities built a fine pavilion for the showing of bees in the Exhibition grounds. He went there with Mr. Cowan, expecting to see a large show, but only found two stocks on view, one of Carniolans and the other of ordinary French bees, which were just like English bees. There was no doubt that French bee-keepers had become alive to the fact that it was desirable to get a mixture of blood, and during the last few years they had been importing Italians. They seemed to be much in favour of Carniolans, which were advertised largely, but the French bee generally to be found was the ordinary brown bee.

(*To be continued.*)

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.

Exhibition at Louth.

This important exhibition was held on July 24th and 25th in connexion with the Lincolnshire Agricultural Society's Show. The opening day was favoured by fine weather, and as a consequence the attendance was large. The display of honey and appliances showed some decline in quantity as compared with previous shows, but it may be noted that the quality was well maintained. The latter feature we are pleased to record as it testifies to the practical advantage bee-keepers derive from periodical competitions. We regret that the falling off in the quantity staged does not admit of an equally satisfactory explanation, and we would impress our Lincolnshire brethren with the importance of resisting the tendency to depend upon others to supply the exhibition tent. Evidently the Association has secured a strong union with the Agricultural Society, and it is most important that the tie should be firmly maintained. This can chiefly be done by each member resolving to be an exhibitor at future shows.

The honey was tastefully displayed after the method adopted by the 'British.' Three large collections of comb and extracted honey occupied the foreground, thus forming a striking feature. These were staged by Mr. T. Sells, Uffington, Stamford; Mr. H. O. Smith, Louth; and Mr. H. S. Forman, also of Louth respectively, each of whose exhibits contained about three cwts. The 2-lb. sections exhibited by the first named were exceptionally fine both in colour and finish, and contributed in a great degree to the position which the judge, Mr. Jesse Garratt, hon. sec. of the Kent B.K.A., assigned to it, viz., that of first place and winner of the Silver Medal.

In the Class for twelve 1-lb. sections, Mr. Sells gained the first and second prizes, the third and fourth being awarded to Mr. Forman and Mr. Emerson, while Mr. Godson received a highly commended.

In Class 3 for 'extracted honey, the total weight to approximate to 24 lbs.,' Mr. Sells was equally successful as in the former class, the first two prizes again falling to him; whilst Mr. Godson and Mr. Truss were accredited with third and fourth; Mr. Jackson gaining a H. C.

In the Class for observatory hives stocked with bees and their queen, three entries, each being a Unicomb hive, were made, the first prize falling to Mr. H. O. Smith, and the second to Mr. F. Riggall.

In Class 5 a good display of practical hives and appliances was made by Mr. Meadows of Syston, Leicester, the most noticeable objects being wood and metal rapid feeders, available for either liquid or dry feeding; a combined wood and straw hive, with special arrangement of perforated zinc at entrance, at 20*s.*; a flat-topped skep on stand, with two interchangeable supering racks and cover, at 10*s.* 6*d.* A novel three-leaf observatory hive, each leaf to hold two standard frames; and many other articles, all of excellent workmanship.

In Class 6, for the best rapid feeder, two entries were made, Mr. Meadows exhibiting a wooden feeder, capable of holding about 12 lbs. of syrup, and constructed to cover the entire length of the standard frame; and Mr. Hutchings, of St. Mary Cray, Kent, one of entirely new design, made of zinc. This consists of a tank or reservoir of the width and depth of the standard size hive, and is made to hang, as the ordinary frame does, by projecting ends. On either side of the tank, near to the top, is a long slit or opening to afford access for the bees, and inside a perforated zinc float, borne upon strips of wood, is provided, whilst the syrup is introduced by means of a tube placed at one end of the tank. To us it appeared there were several objectionable features, and until a practical demonstration of its suitability for the purpose intended is recorded, we should be disposed to endorse the decision of the judge, who declined to award a prize to it.

The only exhibit in the class 'for the best and most complete frame-hive' was made by Mr. G. K. Smith, of Bexley Heath, Kent. This was an experimental hive, containing circular frames, with a diameter approximating to the length of the Standard frame. Much pains had evidently been bestowed upon its preparation, but as no advantages were claimed for it we think the judge did well in withholding his approval of its principle. We have no wish to discourage the introduction of new ideas, but are of opinion that the Quarterly Conversazione of the British B.K.A. presents a more suitable opportunity for bringing them under notice, and of eliciting opinions concerning them. We would also advise that the maker of this hive should subject it to a practical test next season, and make the result known through the *Journal*.

In Class 8 Messrs. E. F. Turner & Sons were the only exhibitors, but were credited with the second prize only for their 12*s.* 6*d.* hive.

In Class 9, for the best honey extractor, Mr. Meadows gained the first prize for his 'Guinea,' the second prize being withheld on account of insufficiency of merit in the article submitted.

In Class 10 Mr. Meadows was again successful, and received first prize for a pair of well-made supering racks, there being no other competitor.

For useful inventions Messrs. Turner & Sons gained a H.C. for the supering rack submitted by them. This rack affords easy facilities for the bees to pass in any direction, it being fitted with hollow walls between the rows of sections. We think it rather doubtful whether it is entitled to claim novelty of idea; and we cannot help thinking that the shifting walls would be better fixed.

Mr. Thomas Lowth exhibited a nicely-made little machine for extracting the honey from 1-lb. sections.

Mr. Howard, of Norwich, exhibited an uncapping machine which consisted of a wooden frame in which the comb of honey is fixed in a horizontal position. The uncapper, which is a block of wood in which a large number of sharp-pointed nails are fixed, slides over the comb after the manner of a harrow, and the result follows that the cells are all torn open. We cannot say that we like either the idea or the performance, but the

thought occurred, 'Why should not the block have a knife or cutter fitted on the underside instead of the sharp points, so that the ceiling might be removed in one piece?'

HUNTINGDONSHIRE BEE-KEEPERS' ASSOCIATION.

A general meeting of this Association was held at the Fountain Hotel, Huntingdon, on Saturday, July 20. The Rev. C. G. Hill, on the motion of Col. Marshall, seconded by Mr. Linton, took the chair.

Col. Marshall reported that the Committee, appointed at that meeting, and consisting of the Earl of Sandwich, Col. Marshall, Rev. C. G. Hill, T. Coote, jun., Esq., and Messrs. J. H. Howard, and C. N. White, had met and drawn up a circular explaining the objects and position of the Society, soliciting subscriptions, and, in order to make better known what the Society wished to teach, offering to send a lecturer to any town or village, if the out of pocket expenses of the lecturer were defrayed. Three hundred circulars have been sent to the clergy and principal residents in the county, but the response had been so feeble that it was thought desirable to call the present meeting for the purpose of considering the advisability of dissolving the Association. The opinion was pretty general that the Association had not met with the support which it deserved; still, looking to the fact that the efforts of the Society had been crippled for want of funds, and that the past few seasons, particularly that of 1888, had been discouraging to bee-keepers, it was thought now that the spirits of bee-keepers were being revived by the tolerably good season of 1889, a further effort to make the Association of use to the cottagers and labourers of the county might be made.

Mr. C. N. White said it was evident that no one present was prepared to move a resolution dissolving the Association, and certainly he could not, seeing how intimately he had been connected with it since its formation, but he was pleased to move that the Rev. C. G. Hill be asked to take the secretaryship, in the duties of which, as he (the speaker) lived so near to Mr. Hill, he would still be glad to assist.

This resolution was seconded by Mr. Linton and carried unanimously.

The Rev. C. G. Hill, in accepting the secretaryship, said he did so with the object of making one more effort to make the Association answer its purpose, and he strongly recommended that an exhibition of honey, &c., should be held at the forthcoming Horticultural Show at St. Ives, in August.

Mr. T. Coote proposed, and Mr. Linton seconded, 'That the other officers for 1888 be re-elected.'

This resolution, having been carried, it was resolved, on the motion of Mr. Coote, seconded by Mr. Linton, 'That an exhibition of honey, &c., be held at St. Ives, in connexion with the Horticultural Show, on August 8, and that the preparation of the schedule, and all other arrangements, be left to the Rev. C. G. Hill and Mr. C. N. White.'

WILLINGHAM HORTICULTURAL, DOG, AND POULTRY SHOW.

The second show under the auspices of the Willingham Horticultural, Dog, Poultry, Pigeon, Rabbit, and Cage Bird Society, was opened on Wednesday at the Vineyards, Willingham.

The specimens of honey shown were, considering the character of the season and the backwardness of bee-keeping in the district, exceedingly good, one sample of superior merit being shown (not for competition) by Mr. White, who acted as judge. As showing the practicability and profit of bee-keeping, we might state that Mr. Bullard, gardener to Mr. H. G. Few, has this season taken from one straw skep ninety pounds of honey in four supers.

Division D (open to all).—Comb honey, in sections: 1, H. Seamark; 2, George Kidd. Honey in supers: 1, H. Seamark; 2, George Kidd. Honey in glass jars: 1, George Kidd; 2, H. Seamark; 3, Pratt. Cake of Wax: 1, H. Seamark; 2, Pratt.

Division E (for Willingham only).—Comb honey, in section: 1, H. Seamark; 2, George Kidd. Honey in supers: 1, Wm. Gadsby; 2, H. Seamark; 3, Bullard. Honey in glass jars: 1, Geo. Kidd; 2, J. Bullard; 3, H. G. Few. Cake of wax: 1, Geo. Kidd; 2, H. Seamark.

IRISH BEE-KEEPERS' ASSOCIATION.

Advantage was taken of the presence of a large number of persons at Castlebar, during the Assize days, 10th and 11th July, to deliver a course of lectures in the bee-tent, Mr. Read having kindly consented to act as a lecturer. Seventy persons, not including members of the Association, attended the lectures. The lecturer began with a short sketch of the natural history of the queen, worker, and drone, explaining their place in the economy of the hive. He then described how the most could be made of the straw hive by working sections, glasses, or caps on flat-topped hives, or cutting the crown off dome-shaped ones, or by inverting them and using an adapter board with excluder zinc. Next he showed how to drive bees, and handed round the hive from which he had driven them, pointing out the worker, drone, and queen cells. He also exhibited the queen with a worker and drone in a glass covered box. He mentioned that the best time for driving was three weeks after the issue of the first swarm, as then all the worker brood would have hatched out of the cells and the young queen would not have begun to lay. He described how to make an artificial swarm from a straw hive by placing the queen with some of the workers in an empty hive on the old stand, and removing the parent hive to a fresh stand. Hiving was practically illustrated by letting the bees run up a board to the entrance. The great advantages of the frame hive over the skep were explained, and the audience were shown the various parts of which it is composed, and the other appliances of modern bee-keeping. The lecturer then manipulated the frame-hive, explaining the use of smoker or carbolised cloth for subduing bees, showed combs containing brood in all stages, including drone-cells, and pointed out the difference in the capping of honey and brood-cells. He explained the economy of using comb foundation, showed how to fix it in frames and sections, and exhibited specimens of the thick kind for stock hive and the thin for supers. He explained the process of tiering up sections or combs for extracting, and showed how to extract and the importance of having the honey ripe. He concluded the lecture by an explanation of the aims and objects of the Irish Bee-keepers' Association.

A VALUABLE HIVE OF BEES.—Mr. James Dalziel, jun., Borgue Hotel, took forty-two 1-lb. sections on 25th June, a globe weighing 12 lbs. on 15th July, and sixty-four 1-lb. sections on 16th July—making in all 117 lbs. of honey from the same hive this year to date. There are remaining in the hive a number of unfinished sections.

What is it which, in the interior of the hive, brightens the monotony of a bee's existence? Why, the wax scandals, of course.

(Please, Mr. Editor, put this in a corner of your paper where the lady readers won't see it.)—HONEYSUCKLE.

Dr. Watts evidently wasn't a bee-keeper, or he would have written—

> How doth the little idle bee
> Bewail the coming shower;
> He stays at home the livelong day,
> And goeth out no mower.
> (*Extract from a Bee-keeper's Note-book.*)

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to Mr. J. Huckle, Kings Langley, Herts (see 2nd page of Advertisements.)

*** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

FOUL BROOD AND ITS CURE.

[2249.] In my last I gave an account how far I had proceeded with the experiment in connexion with the cure of 'foul brood,' and also its attempted propagation in other colonies. I think it will be interesting, and perhaps advisable, to give to bee-keepers some little idea as to what formic acid is. To begin with, it is an acid about which very little is known by scientists in comparison to the bulk of other acids. So little is it used that if we go to a retail chemist and ask for a pound (about a pint and a quarter) not one in five hundred would have it in stock, or perhaps any, and are almost sure to express surprise at your wants. Natural formic acid is an organic acid produced by macerating red ants in water; but the acid used in my experiments is commercial formic acid, artificially produced by heating an equal quantity of oxalic acid and glycerine to a temperature of from 212° F. to 220° F. fifteen hours and distilling with water. The formic acid slowly passes over, the glycerine being regenerated. Glycerine is derived from fats; oxalic acid from sawdust or sugar by the action of nitric or sulphuric acids. It may also be instructively prepared by the oxidation of methylic alcohol. It is not what is termed volatile, that is, giving off a vapour at a temperature of 60° F. The specific gravity of the acid used in my experiments was about 1·060; this I am not quite certain about, but will obtain the precise gravity later on. Its formula is H C H O_2.

At the strength given formic acid is a very simple and innocuous remedy, causing no ill effects if spilt on hands. In taste it is simply acid, with a rather pungent flavour. I may say that I have placed some on my tongue without the slightest damage to that member, so that bee-keepers need be in no fear of injuring the skin of the hands if spilt on them. I mention this, as, in a letter to a contemporary, a well-known bee-keeper has issued a warning, cautioning bee-keepers against using, as he there terms it, 'the most dangerous remedy of the three,' viz. salicylic acid, phenol, and the foregoing. This idea has arisen from a mistake in the description of the strength of acid used. Concentrated formic acid blisters the skin and causes sores which are very difficult to heal. The difference in price of concentrated and commercial formic acid is so considerable that there need be little fear of the wrong strength being used; the concentrated being four times the price of the commercial form.

We now come to the means I used in the administration and preparation of the cure. One of the principal items, about which I have received the most numerous inquiries, is my addition of zinc to the acid. What does it do? Upon the addition of zinc hydrogen is given off in quantities, which carries with it infinitesimal quantities of the formic acid through the hive, not perceptible to the sight. This can be proved by placing a little of the acid upon a piece of highly polished zinc, and causing a very mild, continuous current of air to pass over same in one given direction for an hour. A mark will be made upon the plate, speaking nautically, from windward to leeward of the acid caused by these particles of acid being carried along its surface with the hydrogen, and acting upon the highly polished surface; in other words, the addition of the zinc causes a more rapid and thorough evaporation of the acid, as formic acid, as I have said before, will not give off vapour at 60° F. Whether the addition of the zinc caused the marked improvement in the health of the colony I must leave for future completion of experiments now on hand.

There is one most important point to be considered in these experiments. You will remember that I commenced to treat No. 1 colony from seven to eight weeks ago, at this time they had a varying of sealed honey in each comb gathered and stored while the hive was in a diseased condition; how each of these cell-fulls of honey I looked upon as so much 'bottled-up foul brood,' and from a subsequent experiment I find that I was quite right in my surmise. I have, after curing the colony, again infected it from itself. Directly after my last examination I uncapped nearly all the honey-cells on top of combs and smeared a quantity of the honey scraped therefrom well over the floor-board at the back of the division-board; it was not long before the bees swarmed from under the division-board and cleared it all away; with this they, as I supposed they would and wanted them so to do, fed several of the larvæ upon with the result that upon my next examination to-day (seven days after) several of the larvæ are dead with 'foul brood,' and two cells had dead (foul) larvæ in them. These two cells I disinfected by placing in them a straw dipped in formic acid, and marked such cells for future reference. I have now again applied the vaporiser to this hive, and will publish results.

The bad weather and want of time have prevented a thorough examination of the other colonies under experiment, so I will leave these for a future issue, feeling more and more confident of the future success of this remedy.

In my own mind I do not believe that this cure will simply be confined to formic acid. I have an idea that other acids, such as sulphuric oxalate, will have an equal, if not better effect. Of this later accounts shall be published.

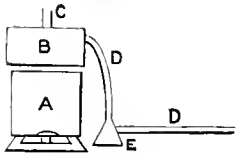
I should wish that a few bee-keepers who have 'foul brood' in their colonies, and who are willing to follow to the letter definite instructions given, would communicate with me that a much larger number of colonies may be under treatment at one time: in point of fact I cannot give the time, neither have I the inclination, to treat a dozen or so of colonies. I have one gentleman's promise to do so, and I think that, say, two more would be sufficient, but they must agree not to deviate from the path laid down one iota, and also be willing to compare notes. I will provide two such with the gutta-percha troughs together with sufficient formic acid for one colony free of expense.—W. B. Webster.

ANOTHER CURE OF FOUL BROOD.

[2250.] Having been troubled with foul brood for some years, I send you my experience of same, hoping to benefit my fellow-readers of *British Bee Journal*. First I acted on advice given in bee books, &c., as to spraying bees and brood with salicylic-acid solution, but which I ought to say poisoned and chilled the brood, &c., which was worse than disease. Then I tried Mr. Cheshire's cure with phenol, which was no good; then tried steaming with salicylic-acid solution, which I found was a very good remedy, but it required a deal of time and was rather expensive, as I used a quantity of salicylic acid. But I have discovered something better than that, which I have used it to advantage this spring. I had the disease in about twenty colonies, which are nearly all cured, and which would have been quite cured by this time if I had time to attend to them; as it is, I have had swarms and supers off hives that were infected with the disease three months ago, and have just taken eighteen

beautifully finished sections off one that was badly infected with it in the spring, and all I have done to them was to procure a Wright and Butler (small) oil-stove, a steam-tight vessel holding about a quart to stand on stove, with pipe to vessel as in kettle, but inserted in top of vessel to take steam instead of liquid. Get carbolic solution as used for subduing bees; add more water to weaken it, so that you do not poison the bees. (I have no proper formula as to strength of carbolic solution, as I use it on myself first, and if I can bear it my bees have to, and I find it does not hurt them or the brood either. Perhaps some of my bee-keeping friends will work it out for themselves.) Put the liquid in the vessel about half or three quarters full; stand the lamp anywhere till it boils, and when it does so, and the steam escapes out of the pipe, take the stove in your hands, insert the pipe in hive entrance, or raise the hive and put the pipe under if you like (of course you rest the pipe on the floor-board, as you might scald the brood by doing otherwise). Let it be a minute, take it out and go on to the next hive, and in about an hour you can do sixty hives; do it to them every three or four days, and in about three or four weeks very little foul brood would be left in the hives affected with it. I daresay I shall be condemned for saying I insert a steaming pipe in the bee-hives, but if it is done gently the bees will keep clear of it, and a very few would be scalded, as it won't hurt them three or four inches away from pipe. I am not afraid of foul brood now, as when I find a hive affected with it I use the remedy. A few applications and the disease vanishes, and the best of it is you do not want to open the hive for any purpose; in fact, it has given me great satisfaction, and I believe it an infallible remedy.—W. EDWARDS, *Mousehill, Milford, Surrey.*

A Oil-stove.
B Vessel to hold liquid.
C Cork hole for filling.
D Pipe.
E Reservoir to hold condensed steam to be returned to large vessel accessible.



JOTTINGS BY WOODLEIGH.

[2251.] In my last 'Jottings,' *re* Packing Honey, I wrote from memory, not having my copy of *Journal* at hand, and so forgot the question about the transmission of extracted honey, and as no other contributor has answered it, I will do so. The 'Self-opening Tin Box Company' make tins that will hold 36 lbs. net, also a size that holds 28 lbs. Now, unless the purchaser has special appliances for bottling honey, I consider the 28 lbs. size a good one, as it is of a convenient size for liquefying the honey when crystallised by placing it in an ordinary copper or boiler; also a useful size for packing in wood case, with straw, shavings, or hay between the tins, and also between tins and sides of case. The Company do not care for very small orders, but have no doubt they will execute orders for, say, two dozen tins, and the vendor can charge for tins to purchaser of his honey. I charge 1*s.* each, and rarely get them returned. They are cheap and useful for many things besides holding honey.

Honey from the Stony Rock.—In *Gadsby's Wanderings*, Vol. I. (1861 edition), mention is made (page 459) of the texts, Deut. xxxiii. 13, and Psalm lxi. 16, and after describing the vineyards and the luxuriance of the valleys from Hebron to Bethlehem, he (Gadsby) goes on to say, 'Many of the hills contain caves, and in the crevices bees often take up their abode, whence the honey flows down the sides of the rocks, *literally* confirming the assurance that it was a land "flowing with honey;"' and in a footnote he adds, 'In the East bees usually make their nests in *rocks*, or hollow trees, or under stones. Honey is therefore often found "on the ground."'—1 Sam. xiv. 25.

In Vol. II. (1860 edition), page 413, Gadsby relates how a writer, 'Abdallatif,' who wrote 700 years ago, tells us how a friend of his dug up a jar which was carefully sealed. He opened it, and found it contained honey. He, and those with him, began to eat, but presently one of them perceived a hair sticking to his finger. The jar was examined more closely, when, lo! the body of an infant was discovered, adorned with jewels. Perhaps it had been there 2000 years or more.' This shows us that honey was used for various purposes far back in the world's history.

Glass Sections.—It may seem rather late in the year to say anything on glass sections, but I notice Mr. J. Hewitt, of 'A Hallamshire Bee-keeper' fame, in a recent copy of the *Record*, has warned bee-keepers that they must procure a license from him before they will be allowed to make or use glass sections, except such as are purchased from him. Where has Mr. Hewitt been these past few years not to have noticed the letters in bee-craft papers relating to glass sections? If he had attended the great exhibition of honey, bees, &c., held in the Duke of Wellington's Riding School, Knightsbridge, *anno Domini* 1883, he would have seen glass sections of honey exhibited by W. Woodley, World's End, Newbury. That, as far as I remember, was the first time glass sections were staged in public competition, though possibly such may have been used before that date. I do not pretend to argue the legality of his right to patent his glass sections, but I do protest against his patenting ideas evolved from other brains to which he has no legal right, and which can be proved to have existed years before his glass sections saw the light of day.

Honour to whom honour is due.—Last week's *B.B.J.* contained the excerpt from a letter which, as you pertinnently remarked, was 'pregnant with hope' for bee-keepers. This week's *B.B.J.* disclosed the secret that the author was our friend Mr. Webster. Well done, friend Webster! 'Berks to the fore again!' If you were in a maze when you inserted the piece of zinc into the formic acid, it evidently exerted a curative influence over the inmates of the hive, and possibly may prove an exterminator of the pest, a consummation sincerely wished for by every bee-keeper who has any idea of the ravages made in a large apiary by foul brood.—WOODLEIGH.

CUMBERLAND NOTES.

[2252.] Bee-keeping in Cumberland, as in Scotland, seems to be very much confined to clergymen, intelligent cottagers, and a few enterprising tradesmen. One class seems in some way to have been overlooked whose interest and sympathy should have been specially beneficial to the advancement of our hobby alongside of their daily labour. I refer to gardeners. The writer for years has been associated with horticultural shows, and can testify to much opposition and want of interest on the part of many gardeners, as being the only hindrance of having bee-keeping located in beautiful and most suitable districts.

It is pleasing, then, to record the fact that among my first bee-keeping acquaintances in Cumberland were two of this class, whose avocation does not seem to hinder them from being the leading apiarians of the surrounding district. To visit the garden of Distington Hall and see the neatly-arranged apiary, composed solely of substantial bar-frame hives, the sole workmanship of the gardener's (Mr. Clark) spare moments, and to closely inspect the care and enthusiasm evinced by this gentleman, we are not surprised to learn that already the average this season, from six hives, has been over sixty pounds each, which might be very much augmented if the usual removal to the heather was resorted to.

Mr. Clark has done yeoman service in the neighbourhood of Distington, in planting and visiting small apiaries. Near to Distington Hall is Gilgarrow House, where another veteran reigns supreme. The gardener, Mr. Galloway, is able not only able to handle bees, but feels at home studying the newest inventions, and with his own hands turns out creditable improvements. I need hardly mention that the interest of these gentlemen in bee-keeping has enlisted that of their different employers, and so we see the service which even the humblest pioneer may perform. These examples I submit as typical advanced bee-keepers; the ancient ones I will leave for another occasion.—E. McNALLY, *Harrington.*

WASP'S NEST IN FRAME HIVE.

[2253.] I am sorry I cannot report that progress in the wasp's nest that I should like. I quite thought that by this time it would have been double its present size. However, it is as it is, and as the countryman would say, 'an it conner be any isser.' The measurements are, depth, $2\frac{3}{4}$ in., width, $2\frac{3}{4}$ in., entrance, $\frac{1}{3} \times \frac{1}{4}$ in. The beautifully formed dome is brought down to the depth of $1\frac{5}{8}$ in., and measures across $3\frac{1}{4}$ in., thus making an enclosure of in.—C. C. MOORE, *Altrincham, July 29th.*

INDUSTRIOUS WORKERS.

[2254.] On Wednesday, June 19, at four o'clock in the morning, I united three swarms of bees which had issued the previous day, and put them into an empty hive with nine large frames, with a fine young queen at their head. In a few days I placed on supers and left them to take care of themselves. Yesterday, as I perceived they were getting overcrowded, I removed the supers and took off *eighty-one* pounds of comb honey (net weight). The hive in which the swarm was placed is still left behind, with from fifty to sixty pounds in it. All this work was done within a month. Nine days later than the above date, I joined four second swarms together, headed also by a young queen, treating them in the same way as I did the other, and I have taken from them to-day fifty-five pounds of comb honey (net weight). This swarm likewise has the same quantity left below. All the honey I have taken from these swarms is beautifully sealed and white, very thick, and of delicious flavour. My other stocks and swarms are doing proportionately well. I should be glad to know from any of your readers whether it is usual for bees (new swarms) to store away so much honey in such a short time. I was quite astonished at the sight when I removed the supers, and could scarcely believe my own eyes.—JAMES ARTHUR KEMPE, *Veryan Vicarage, Cornwall.*

NOTICES TO CORRESPONDENTS & INQUIRERS.

HINKSFORD.—*Extracting from Brood Combs.*—Wait until all brood is hatched out. Your bees ought to have done better this season—we expect they have swarmed; if not they ought to be examined to see that there is no disease.

X. Y. Z.—*Extracting.*—You ought not to extract all the honey; if you do you will seriously damage your stock, as you would have to extract from combs containing brood. These would be injured, and your honey contaminated with smashed larvæ, &c. Extract only those combs containing no brood.

G. KING.—*Erratic Swarm.*—It is inexplicable that a swarm having a queen should be quartered in a hive for eight days without making any comb; such an event we have never known, coupled with the fact that directly they were placed in a bar-frame hive they commenced and continued to work briskly. The fact of two swarms uniting is nothing unusual.

E. T.—*Honey Samples.*—No. 1 sample of honey is very thin, and we should say extracted before it was ripened. No. 2 is of good consistency, and therefore preferable to No. 1. The flavour of both is much the same: we should say gathered from white clover.

S. WALES.—Your sample is the same as No. 2 (above). Retail value, 1*s.* per lb. in small quantities. Of course less if sold to a dealer and in quantity.

O. A. P.—1. *Syrup for Autumn Feeding.*—Sugar 10 lbs. water 5 pints, vinegar 1 oz., salt $\frac{1}{2}$ oz., salicylic acid solution 1 oz. (To make salicylic acid solution, take salicylic acid 1 oz., soda borax 1 oz., and water 4 pints. Mix.) 2. *Position of Frames.*—Excellent bee-keepers are to be found as advocates for either plan. 3. *Transferring.*—This is more tedious than difficult. See Cowan's *Guide-book.* 4. *Destroying Wasps' Nests.*—Those in the ground can be effectually settled by steeping rags in strong turpentine, and plugging the *entrances* (both, mind) with them. Cover with a sod, and leave them alone in their glory. Burning sulphur held below a paper nest is certain death to all at home. The evening is the time to attack the nests.

G. H. SAMSON.—*Wintering Bees in Stable.*—We should strongly advise you not to attempt this. Keep them on their present stand, but cover them up well.

SAMSON.—*Artificial Swarming.*—You should have put the swarm on the old stand, and removed the parent stock to a new location. Examine the frames, and see if there is any sealed *worker brood*, the eggs from which it was hatched having been laid since you made the swarm. The successful wintering depends on your care and attention in properly feeding them up, and making them generally comfortable.

H. PERRY.—*Honey from Heather and Clover.*—This should be excellent. The sprig sent is not *the* heather for honey; it is *Erica tetralix.* Bees will travel three or four miles for honey.

P. P. KILKELLY.—*Death of Bees.*—We do not consider that the firing of a small cannon close to the bees would cause their death, more especially as Sir John Lubbock asserts that bees do not hear. We should rather say that the bees were suffocated in the box.

WALTER RANDELL.—1. *Races of Bees.*—Study Cowan's *Guide Book*, which will inform you of the mode of distinguishing the different races of bees.—2. *Over-manipulation.*—It is not desirable to inspect your bees frequently. It has an injurious effect on their temper.—3. *Putting on Sections.*—They may be put on at once if during the honey-flow.

J. J. K.—1. *Painting Hives.*—The inside of hives may be painted any colour you prefer, but it is not necessary that it should be painted at all.—2. A double wall with packing is best, with $\frac{3}{4}$ inch outer wall and $\frac{1}{2}$ inch inner.—3. *Time of Queen commencing to lay.*—Uncertain, but generally from seven to eight days after hatching.

R. AULD.—*Moving Bees a short distance.*—There is great danger of losing bees by moving them so short a distance. They should be moved two miles away for a fortnight, and then brought to position required.

H. DONNEL.—We should recommend you to advertise your spare numbers of the *Bee Journal.*

T. C. GAULTON.—The sugar sent is a raw sugar, and will make a serviceable syrup, but we would recommend refined crystallised sugar. Duncan's pearl is preferable.

A. P. M.—*Liquefying Honey.*—Keep it at a high temperature, say, from 90° to 100°.

H. H. LEE.—*Natural History of Bees and Humble-bees.*—You would get the information you are in quest of in Kirby & Spence's *Entomology.*

SHOWS TO COME.

BEES, HIVES, HONEY, ETC.

July 31st and August 1st.—Glamorganshire General Agricultural Society at Treorky, Rhondda Valley. Secretary, D. P. Davies, Commercial Street, Aberdare.

August 6th, 7th, and 8th.—Yorkshire Agricultural Society, at Hull. Secretary, Marshall Stevenson, York.

August 20th and 21st.—Shropshire Bee-keepers' Association at Shrewsbury. Sec., W. G. Preece, Shrewsbury.

NOTTS ASSOCIATION.

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Aug. 15.—Woodborough and Epperstone.
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THE BRITISH BEE JOURNAL

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Editorial, Notices, &c.

EMINENT BEE-KEEPERS.

No. 9.—THE REV. H. R. PEEL.

We feel that we must no longer delay the introduction to our readers of one to whom we consider the bee-keepers of the United Kingdom will ever feel their deep indebtedness.

The subject of the present sketch, the Rev. H. R. Peel, for many years acted as the Honorary Secretary of the British Bee-keepers' Association, and threw himself into this work with an ability, an energy, and a tact that could not be surpassed, sparing neither time, trouble, nor expense, in endeavouring to extend a knowledge of bee-keeping amongst all classes. To Mr. Peel is mainly due the establishment of County Associations affiliated with the Central in nearly every county in England and Wales, and to this organization must be attributed the advance of bee-keeping in this country; and this work was prosecuted by him with the sincere desire of promoting the general welfare of the community.

THE REV. H. R. PEEL.

We subjoin some of the more salient points of his biography.

The Rev. H. R. Peel was born on February 8th, 1831, at Canterbury. His father was the Very Rev. John Peel, D.D., dean of Worcester, and for over forty years rector of Stone, who was the brother of the well-known statesman, Sir Robert Peel. The late Mr. Peel was therefore first cousin of Sir Robert Peel, and the Right Hon. Arthur W. Peel, Speaker of the House of Commons. He was educated at Eton College, Dr. Hawtrey being then Head-master. Having spent two years at Bremhill, in Wiltshire, as a private pupil of the Rev. Henry Drew, he proceeded to Christchurch College, where he remained until he had taken his degree of Bachelor and Master of Arts. Both at Eton and Oxford Mr. Peel took honours as a classical scholar, gaining a Fell Exhibition at Christchurch of the value of 40*l.* per annum, and being presented with an honorary class in taking up his B.A. degree. He was well known at Oxford as a cricketer, and played in the Oxford eleven against Cambridge in 1851–52, as well as for the County of Kent. He was also very fond of hunting, rowing, and other athletic pursuits.

In 1854 he was ordained: and from 1854 to 1855 he held the curacy of Hallow, in Worcestershire. In 1855 he removed to the curacy of Charlecote, in Warwickshire, the seat of the Lucy family, where he remained five years. In 1860 he undertook the more arduous duties of the parish of Handsworth, a suburb of Birmingham containing 16,000 inhabitants, where he remained as rector for twelve years. During these years he performed the duties of an active and zealous clergyman, earning the esteem of both Churchmen and Dissenters. He is well remembered at Handsworth as being the promoter of working-men's clubs. Having suffered several severe attacks from rheumatic fever, in 1873 he resigned the rectory of Handsworth. While he was Rector, three district churches—Holy Trinity, Birchfield, Christ Church, Perry Barr, and a little iron church at Hampstead—were erected.

On the death of Mr. Peel's father in 1875, he took up his residence at Abbot's Hill, the seat of John Dickinson, Esq., near Hemel Hempstead, in Hertfordshire. It was here that Mr. Peel first became connected with the British Bee-keepers' Association. Desirous of instructing the labourers and cottagers on his estate in the art of bee-keeping, he invited the late Mr. John Hunter, on the occasion of a harvest home, to give them a lecture on the subject. At Mr. Hunter's request, he then became a member of the British Bee-keepers' Association. In 1878 Mr. Peel attended a meeting of the Association at the Birkbeck Institute, and, finding that it was then in a very low condition, and Mr. Hunter having announced his intention of resigning the secretaryship, Mr. Peel volunteered to undertake the duties of that office.

Mr. Peel threw all his energies into this work, and he had soon the gratification of resuscitating the Association. To him, in a great degree, was due the formation of County Associations, and the connecting the County Associations with the Central, thus teaching the art of bee-keeping to cottagers in the remotest parts of the kingdom. He established an Association in Hertfordshire: and not content with founding an association in the county in which he resided, by personal visits and by correspondence he penetrated into thirty-five counties, which now boast of Bee-keepers' Associations, and animated them with the spirit and energy with which he was himself possessed.

In 1882 Mr. Peel left Abbot's Hill, and took up his residence at Thornton Hall, near Stony Stratford, Buckinghamshire, where he put forth the same energy in the cause of bee-keeping as he did in Hertfordshire.

In the latter part of 1882 Mr. Peel purchased the proprietory rights of the *British Bee Journal* from Mr. C. N. Abbott, of Southall, in order, as Mr. Peel said, that the 'bee-keepers might have a paper of their own free from any trade interests or bias of any kind.' Into this he infused great spirit, so that its circulation was soon increased, and it was converted from a monthly publication to a fortnightly: and he left as a heritage the hope that it would speedily be published once a-week, a hope which has been recently fulfilled.

In the poultry world Mr. Peel was almost as well known as in the bee world as a breeder of dark or coloured Dorkings, for which he has taken many prizes at the Crystal Palace, and other large poultry shows.

In the spring of 1885 Mr. Peel was much troubled with rheumatic pains; and the failure of the baths, which in former times produced a salutary effect, to dispel these pains caused much mental depression, and an apprehension that he was about to be afflicted with one of his old attacks. We regret to say that his strong mind gave way, and on June 2nd, 1885, he put an end to his life.

In all the relations of life, domestic and social, Mr. Peel was most exemplary, being a kind husband and an indulgent parent. As a public speaker, he was clear, fluent, and convincing; as a minister of the Gospel, he was earnest and faithful, ever caring for his parishioners' highest interests; as an employer of labour, he was reverenced and beloved by all the cottagers and labourers on his estate; as a friend to bee-keepers, he had no equal, and all have just cause to mourn his sad and untimely end.

BRITISH BEE-KEEPERS' ASSOCIATION.

Conversazione.

(*Continued from page* 335.)

Mr. Blow could not say much about foul brood in France. Judging from conversations with a few bee-keepers he thought the disease was not so serious there as in England. No doubt the fact that the climate was warmer and drier accounted for the comparative immunity from it. He had had the pleasure of a visit from M. Bertrand, of the *Revue Nationale d'Apiculture*, who was a great friend of Mr. Cowan's, and while inspecting the exhibits in company with those gentlemen, he had spoken on the subject of foul brood. M. Bertrand considered that chilled brood had a great deal to do with the spreading of foul brood. Chilled brood might exist without ever becoming foul brood; but if there were chilled brood in a hive, and the conditions were favourable for the spores of foul brood to get to it, then foul brood would arise. He (the speaker) thought great respect was due to the opinion of so eminent an authority as M. Bertrand.

Mr. Hooker indorsed the views just expressed, saying that where chilled brood existed, no doubt the bees were predisposed to any disease.

The Chairman thanked Mr. Blow on behalf of the meeting for his interesting remarks. He considered there was one branch of the industry in which English bee-keepers would do well to follow the example of their friends on the other side of the Channel—that was in the production of wax, which was neglected to a great extent in the British Isles, honey alone claiming attention. He thought more care might be taken of the broken combs. A piece of very interesting information was that the celebrated Gatinais honey was identical with sainfoin honey, which had been to some extent disparaged in their own country. However, tastes varied everywhere, and perhaps the fact mentioned was as equally unaccountable as that heather honey in France was disliked, whilst heather honey in England often sold for threepence per pound more than any other honey. The renowned Borgue honey, almost exclusively kept for the Royal table, was the production of heather and other herbs. He was under the impression that the Landes districts were principally dunes or sand-hills. He believed that if the French were ever to make much progress and profit in apiculture, they must adopt a standard frame and establish a central association and journal, and thus work together in unison. He would like to ask whether Mr. Blow saw any other foreign bees besides Carniolans, such as Minorcans and Cyprians; also whether foreign queens were ever introduced. The French bee was probably the same as the English bee, a descendant of the common brown bee of Germany, which no doubt existed all over the north of Europe before the straits of Dover were formed. He quite believed in M. Bertrand's opinion that chilled brood was very likely to result in foul brood, and strongly advised that the brood-nest should not be disturbed in the sharp nipping time of spring, but be kept well quilted. Brood that was decomposing just gave the very sort of soil in which noxious bacilli floating about in the air were in search of, at least that was the opinion of bacteriologists. He should think that chilled brood was not a cause of the disease, but an accessory before the fact. Of course, it was much more desirable to prevent foul brood than to cure it.

Mr. Hooker suggested that the reason why wax was produced to such a large extent in France was explained in the fact that the bees were treated differently there. Sulphuring brought about an accumulation of combs, from which wax was made. In England they were not so wasteful as to destroy the bees, combs being used over and over again. At the same time, he thought combs were often kept too long in the frames, and that if they were changed more frequently there would be less likelihood of foul brood. When they became clogged with pollen it was economy to boil them up and give the bees foundation made from the extracted wax. He could not agree in the Chairman's remarks about sainfoin honey, which, he thought, was generally regarded with high favour. Clover honey was very bright and clear, but often almost tasteless. He accounted for heather honey being valuable on the ground that comparatively very little of it was produced.

The Chairman remarked that the Yorkshire clover honey was anything but tasteless, having a strong jessamine flavour.

Mr. Hooker was of opinion that the quality was governed by the weather, a dry hot season giving the best produce.

Mr. Blow said that no doubt Mr. Hooker's explanation of the abundance of French wax was correct. Another point was that they did not expose the combs to steam as in England, which caused discoloration, but simply used the solar wax extractor. He believed that Landes was a heath district, and not merely sandhills, as supposed by the Chairman. Straw skeps were greatly in use, and that partly explained the absence of foul brood in France. Only the advanced bee-keepers imported queens to any extent. He did not think that ordinary bees were indigenous at all to England and the north of Europe, and was of opinion that if not cultivated there, they would all die out in a hundred years or less.

Mr. Burniston suggested that one argument against using old combs year after year was that larger bees were produced by new combs and new foundations. He agreed with the Chairman regarding the excellent nature of Yorkshire clover honey.

Mr. Meggy and Mr. Hooker continued the discussion, the latter gentleman confirming Mr. Burniston's remarks in respect of old and new combs. It had been thought

that if a foundation could be made a trifle larger than the ordinary cells of bees, and not so large as drone-cells, a bigger race of bees would be produced. Sometimes the plan succeeded, and at others drones were found cropping up all over. The manufacture of that kind of comb for brood-nest had now been entirely given up.

At this point the discussion turned upon the use of drone comb in sections, upon which subject Mr. Meggy, Mr. Hooker, the Chairman, Mr. Soar, and Mr. Burniston expressed their opinions, Mr. Hooker's view being adverse to such practice, which frequently resulted in the comb being spoilt by the queen getting up into the sections for the purpose of laying drone-eggs. Mr. Soar and Mr. Burniston had seldom or never met with this experience.

Mr. Blow suggested that the Chairman's observations respecting the late Mr. Yates should take the shape of a motion to be submitted to the meeting; whereupon the Chairman moved a resolution expressive of the regard and esteem felt for the deceased gentleman by all bee-keepers who knew him, and of condolence with his sorrowing family. Mr. Hooker and Mr. Burniston seconded and supported the proposition, both gentlemen having enjoyed the friendship of Mr. Yates.

Mr. Hooker moved, and Mr. Meggy seconded a vote of thanks to the Chairman for presiding, which compliment was briefly acknowledged, and the proceedings terminated.

MANAGEMENT OF MY APIARY.

By Mrs. Harrison.

I usually have help in the apiary during the busy season, but this one has been an exception. My partner in the stings and sweets was called from home on business in another state, leaving me to manage the bees according to my pleasure. There is nothing that I enjoy more than following my own inclinations in the management of an apiary. Our first swarm issued June 2nd, and our apiary numbered seventy-six colonies at the commencement of the swarming season. I hived eight or nine swarms a-day occasionally; there would be rain, and then I could rest and plan for the future. Our queens are all unclipped, yet I caught four out of six one day as they left the hive. I wanted honey and not increase, so I have been working with that end in view. When I caught a queen I caged her, and moved the old hive and put a new one in its place with the queen at the entrance. At one time I had four arranged this way, and paid no attention to the swarms to which they belonged, giving my attention wholly to those who had queens with them. In two instances the bees failed to return, but united with other swarms in the air. I then returned their hives to their old stand and released the queen. Introducing a fertile queen to a colony immediately after swarming is said to prevent after-swarming, and it proved true according to my observation.

After the swarms were taken care of, I turned my attention to the colonies that had swarmed. The first colonies that swarmed I let remain without moving, as I wanted them to rear queen-cells. When I had all the cells I wanted, I moved the old colonies to a new stand and left the swarm where they stood to prevent after-swarming. Latterly, I put the swarm upon the old stand and removed the sections to it: then I lifted out the combs and brushed off all the bees with the swarm and extracted the honey. The brood I put into nuclei or exchanged frames containing brood for empty ones. I think bees are more apt to desert comb containing brood than empty ones, so I try to hive bees upon it whenever practicable. The cells in the hive that swarmed, and were without a laying queen, are full of honey, and some of these I extract so as to have empty comb for swarms.

Extracted Honey.—Few persons are aware of the possibilities of extracted honey. Some swarms were hived upon empty frames, and now they are full of comb of snowy whiteness. I extracted some of the outside frames containing no brood, and obtained most delicious nectar—real ambrosia, fit food for gods. How different pure clover-honey or linden is from mixed honey, dark and light, with no decided flavour.

Honey Flow Irregular.—This season the bees live one day with Dives and the next with Lazarus, and what comb-honey is built will not be as fine as it would be were the flow continuous. One season, during such a flow of clover honey, the comb was so delicate as to be almost imperceptible. There is no lack of white clover, it is blooming everywhere, in every nook and corner; but the winds are at fault, with much rainy, cool weather. Hives are very populous, and if the right kind of weather comes surplus may yet be stored, just such weather as Indian corn revels in, the kind that we can hear it grow, snapping and rustling, is good honey weather.

Hives must Pay.—I am a hard landlord, a real pound-of-flesh man; every hive shall pay its rent. I will trust during a hard time, but it must come some time during the season. A colony that is not able to pay in comb-honey must yield at least a few pounds of extracted. Those that have not been able to build in sections during the clover flow, have at least the outside combs full of this delicious nectar, and here is where I get my toll. I cannot see why well-ripened fall-honey is not as good and safe food for wintering bees as that of a lighter brand, and while bees do not care to build comb in the fall, they will store in comb.

Selling Honey.—This is where many wreck their craft. They have ability to produce but not to sell. This season has been very prolific in bees but not in honey, yet persons who have secured a few sections are pressing them upon the market, during an abundance of small fruit, when there is little or no demand for it, and consequently at a low price. This is a bad precedence, when honey is sold early cheaply, it is difficult to raise to a higher figure. In this way they not only injure themselves, but all who are engaged in its production.—*Peoria, Illinois.*

BEE-CULTURE AT JAFFA, SYRIA.

Some years back I tried tobacco-smoke on a very vicious colony of Cypro-Syrians. I could subdue them with nothing, being dreadfully stung. I smoked them *ad infinitum*, and was astonished to find them tumbling over and over at the bottom of the hive. I succeeded in subduing them. I did the same to a very vicious colony of Syrians soon afterwards, but never tried it again, as I had no occasion for it. Very vicious ones are either discarded or else worked in just the time of day convenient. I think during the hottest hours of the day no robbery is going on; and the gentlest way a man can handle them is to use plenty of smoke to begin with before opening the hive. Tobacco-smoke is the only remedy I know of to get down the *braula cœca*, which is often met with on bees. A queen-bee having often a number of these parasites, I pick up the queen by the wings and give her two or three puffs, and the little fellows will tumble down dead. Picking them off with the pincers is very trying, as the animal does not keep quiet for a moment, but rushes about, the body particularly, when disturbed; the smoke does not injure the queen. Tobacco blossoms also give honey, which has a slight taste of tobacco. I think the habit of smoking bees with tobacco originated with pipe-smokers (in Germany), as it is very easy for a tobacco-smoker to light his pipe, give a few puffs, and continue the use of his smoker at his pleasure. In Palestine tobacco is used very extensively, in cigarettes, pipes, and the well-known bubble-bubble, the arjelar, or water-pipe. A water-bottle has a stem of copper fitted

to it with three openings—one in the water, one at the head where the tobacco is put, and one in the empty space above the water. The smoke, being drawn through the water, gets purified, and continues its long way through the various-coloured leather tube, corded with silver wire, having a length of several feet, into the mouth. Bee-keepers here never use tobacco smoke for their bees. Horse or cow manure is the only fuel for smoking the bees, through an old water-jar, having a small hole at the bottom. The smoke is blown by the mouth—a difficult process. How thankful we should be to Mr. Quinby for giving us such a comfortable smoker! In bee-keeping for women Mrs. B. supposes it quite work enough to do the necessaries without looking for the pleasure of carrying them about for fun, as Mrs. Chaddock tells us. My wife generally holds the smoker while I handle the bees or shake them off for the honey, which I put in empty hives on a wheel-barrow beside me, which, though very clumsy in comparison to the one you advertise, still does the business well, taking four hives with eighteen frames each. As soon as extracted, the empty frames are brought back and distributed, if possible, before sunset, as experience has taught many a bee-keeper never to handle bees after that. Robbers don't trouble us as long as honey is coming from the flowers; but as soon as the honey flow is over, they are a trouble, it being impossible to work more than an hour at a time; then we stop again till they are dispersed. They also defend their hives as well against intruders.

I suppose there is no established rule as to the age queens continue to lay well. Very much depends on their having been in a nucleus or very strong colony, and also whether they have passed good honey seasons, obliging them to lay extensively. Revising the apiary during April and May, being an interval with very little honey-flow, I try to put away such queens as seem to go back or stand still in brood-rearing, as we want a good number for the thyme blossom. I took away the old queens at some hives, but found more of them had either raised another one, killing the old queens at once, and in one case they kept both queens; but they have finally done away with the old one. A hive having nine brood-frames and upward may be considered a good one with us. Less than nine frames is a poor layer in a season when pollen is coming in plentifully, and stimulative food being given. But then, again, you can't tell exactly when the queen stops laying, as you may look in for three weeks or more, finding an increase of one or two brood-frames each time; all of a sudden they stand still. From fifteen frames you are tempted to take away one or two, and find the next time only eleven or twelve frames. I never clip queens' wings, but I keep a record of them all, and find I am always, or nearly always, well informed, as the trace, even, of a superseded queen is easily known. Take all in all, I think the end of the second season is just the right time to raise new ones, the exception also being for longevity the third season. Some queens will never be superseded by the bees—they live and die together.

A friend of mine came around the other day, and I read to him 'Dot Happy Bee-man.' As we both talk German, we laughed till our 'schtomacks went schplit.'

Drones fly out and congregate on afternoons of warm days, as we frequently see. I have not yet observed whether they congregate at some particular point year after year, although I heard their loud roar one season, day after day, above the road I crossed to go to the apiary, but never could I distinguish them.

'All our eggs in one basket and too many irons in the fire,' seems to be very general among bee-keepers; in fact, it seems as if most bee-keepers concluded, after a few years' trials, and hard trials too, that it is better to put 'several irons in the fire.' Being of the number, I must state, for the benefit of new comers into the bee-fraternity, they should not rashly do away with one business before having well grasped the other. When we began bee-keeping, all other occupations were discarded, to our great detriment. Slowly, but surely, they are taking their respective places again. What has been rejected is welcome again. Most bee-keepers live in the open country—at least they ought to for the greater benefit of their bees—and thus have an occasion to put up with live-stock, which comes in very handy at times; besides raising a few vegetables for the kitchen, this will help us a great deal to get along in a poor season. Since I find the question so largely discussed by many fellow-sufferers, I fully sympathise with them.

Our receptacles for holding extracted honey come all the way from America to Palestine, and we find them a good deal cheaper than anything that can be had here. I guess some of the readers of *Gleanings* will be astonished to hear it when I tell you that a thoroughly cleansed petroleum-can holds 50 to 55 lbs. of honey, and does the same service as new tins, and seldom have our customers had to complain about petroleum taste; this also was in former years. We take two petroleum-cans and pack them into a petroleum-box, paying five or six cents each tin and box, soldering costing seven cents each tin; nails and hoop-iron around the box, three to four cents, making a total cost of thirty-six cents for 100 lbs. to 110 lbs. of honey. If our California bee-friends could utilise the same, they could pack very nearly three lbs. of honey for a cent instead of one cent a pound, as mentioned on page 765 *Gleanings*, 1888. The tins are thoroughly cleansed by putting ashes and water, to stand a few hours, in the tins, and occasionally shaking them; after having rinsed them with fresh or warm water, a few drops of alcohol, lighted, finishes the whole. Can they not be had in their own country at the same rate, or cheaper, than some thousand miles away from their starting-place?—Ph. J. Baldensperger, *Jaffa, Syria.* (*Gleanings*).

BEE-KEEPERS' VOCABULARY;

Or, Glossary of Technical and Scientific Words used in Works upon Bee-keeping.

Dalmatian bee.—A race of bees found in Dalmatia. They are of a shining blue-black colour, slim and wasp-like in appearance, the abdominal rings being banded with a light yellow pubescence. They are said to be very prolific, easy to manage, and good bees for comb-honey.

Darts of sting.—The two barbed lances which slide side by side on the sheath, and are thrust forward alternately into the wound. See *Barbs of sting.*

Dead air-space.—See *Air-space.*

Dead brood.—Brood that has died from being chilled or from other causes, such as neglect on the part of the bees to feed the larvæ, or their inability to do so owing to a want of pollen or honey.

Death's Head Hawk-moth, or Sphinx.—See *Acherontia atropos.*

Deborah, *n.*—Hebrew name for bee, signifying 'she that speaketh.'

Decoy combs.—Clean combs placed in supers to induce bees to ascend into them; guide-comb. See *Comb-guide.*

Decoy hive. (*Du. kooi*, cage.)—A hive prepared as a snare, used formerly to entice a swarm to take possession of it; sometimes used by unscrupulous bee-keepers to catch their neighbours' swarms. It is still used by the St. Leonard's Forest bee-keepers for alluring vagrant swarms.

Decussate. *v.* (fr. *L. decusso*, I strike across.)—To

intersect; to cross, as do the optic nerve fibrils of the bee's eyes.

Decussating. *ppl.*—Crossing; intersecting at acute angles.

Deglutition. *n.* (*L. deglutio*, I swallow.)—The act of swallowing.

Dejections. *n. pl.* (fr. *L. dejicio; de*, down, and *jacio*, I throw.)—Voided excrements; dejectamenta; fæces; excretions.

Dejectamenta. *n. pl.* (*L.*)—Dejections.

Deliquesce. *v. intr.* (*L. deliquesco*, I melt.)—To melt gradually and become liquid by attracting and absorbing moisture from the air.

Deposing queen. (fr. *L. depono, depositum*, to lay or put.)—To divest the queen of office; used sometimes to express that a queen is not accepted after introduction.

Depressor. *n.* (fr. *L. depressus, de*, down, and *premo*, I press.)—The muscle that depresses or draws down the part to which it is attached, as the *depressor alarum*, lit. a presser down of the wings.

Deprivation. *n.* (fr. *L. de*, and *privo*, I take away.)—The act of taking away; taking honey away from the hives; the separation, or taking of the hives of honey.

LEICESTERSHIRE BEE-KEEPERS' ASSOCIATION.

The annual show was held on July 31st and August 1st at Melton Mowbray, in the show yard of the Leicestershire Agricultural Society.

Mr. John M. Hooker, the judge, writes: 'The Leicestershire Association have reason to be proud of the grand display of honey this year. The great uniformity of appearance and flavour made it a difficult matter to select the best, where all were good, my only regret being that I had not double the number of prizes to award in the several classes. I never saw a better lot of honey staged; it shows that the teaching of the Association has not been in vain.'

Over 1700 lbs. of honey were placed on the tables.

No prizes were offered for collections of appliances, but Messrs. Meadows and Redshaw kindly and gratuitously made a display of their wares—a great boon, considering the financial position of the Association.

The following is the prize list:—Class I. Observatory hives (four entries): Miss E. B. Cooper, Leicester, 1; Mr. C. Redshaw, S. Wigston, Leicester, 2. Class II. Super honey, 50 lbs. (seven entries): J. W. Bickley, Melton, 1; Miss E. B. Cooper, Leicester, 2; J. R. Truss, Ufford Heath, Stamford, 3. Class III. Run honey, 50 lbs. (sixteen entries): Rev. M. A. Thomson Thistleton, Oakham, 1; J. Day, Wymondham, Oakham, 2; Miss Chester, Waltham, Melton Mowbray, 3. Class IV. Twelve sections (twenty-three entries): J. W. Bickley, Melton Mowbray (silver medal), 1; J. Mowbray, Melton, 2; J. Day, Wymondham, 3. Mrs. Rippin, of Waltham, Melton, and W. P. Meadows, highly commended. Edwin Ball and Miss E. B. Cooper commended. Class V. Twelve jars run honey (twenty entries): Mrs. Copley, Melton Mowbray, bronze medal, certificate, and 5*s.*, 1; Mrs. Rippin, Waltham, 2; J. Day, Wymondham, 3. Edwin Ball, G. Squires, Waltham, and W. Lowe, Branston, Grantham, highly commended. Class VI. Best frame-hive, 10*s.* 6*d.* (two entries): C. Redshaw, 1; W. P. Meadows, 2. Class VII. Best frame-hive for general use (two entries): C. Redshaw, 1; W. P. Meadows, 2.

The bee-tent attracted no attention on the first day, but a fair attendance was secured on the second day. The driving, lecturing, and handling of bees in bar-frame hive, were conducted by Mr. Geo. Munday, the Association's expert.

Assault on a Girl.—Before Sheriff Dickson, in Kirkcudbright Sheriff Court, on Friday, William Reid, residing at Burnfoot, Newabbey, was charged with assaulting Mary Agnes Gibson on the 10th July. From the evidence for the prosecution it appeared that the girl was watching the bees in a field belonging to Mr. Barbour, Overton, as they were hiving. Accused came up and struck her on the arm and knocked her down, and afterwards threw the bees on her. She was much stung about the face, and her arm was hurt. In answer to Mr. Gibson, who appeared for accused, the girl said Reid told her to stop hiving the bees till he found out whose they were. That was after he struck her. The bees belonged to her aunt. The girl's mother gave corroborative evidence. Barbara Reid, sister of the accused, said she was sent for by her brother, because the bees were hiving. Mary Gibson afterwards told her her brother had knocked the skep into the ditch. She had at that time no appearance of being stung. His lordship found the charge proven, and imposed a fine of 10*s.* or seven days' imprisonment.

Outraged Bees.—A Savage Attack.—There was a scene at Radwinter on Tuesday, July 23rd, owing to a little forgetfulness on the part of a baker, named Henry Ruse. He took a quantity of honey from a hive, and omitted to secure the bees, who declared war at once, and attacked savagely everybody, and did a deal of mischief. An unfortunate hen that happened to be abroad was pounced upon by the bees and speedily done to death; then a horse belonging to Mr. Myhill, of Saffron Walden, and ridden by a young man named William Coote, was attacked, and its rider had a bad quarter of an hour; and many children were stung severely. Ultimately the bees retired, and as the whole village is now aware of their anger, it is expected that if they dare to renew the stinging attack they will be easily repulsed.

Tabby's Curiosity.—A gentleman in a certain town in America possessed the only hive of bees in the place, and he said that when he got his swarm his old cat's curiosity was much excited in regard to the doings of the little insects, the like of which she had never seen before. At first she watched their comings and goings at a distance. She then flattened herself upon the ground and crept along the hive, tail horizontal and quivering. It was clearly evident that she thought the bees some new kind of game. Finally she took up a position at the entrance to the hive, and when a bee came in or started out made a dab at it with her paws. This went on for a time without attracting the special attention of the occupants of the hive. Presently, however, 'Old Tabby' struck and crushed a bee on the edge of the opening to the hive. The smell of the crushed bee alarmed and enraged the whole swarm. Bees by the hundred poured out and darted into the fur of the astonished cat. Tabby rolled herself in the grass, spitting, sputtering, biting, clawing, and squalling as cat never squalled before. She appeared a mere ball of fur and bees as she rolled and tumbled about. She was at length hauled away from the hive with a garden-rake at the cost of several severe stings to her rescuer. Even after she had been taken to a distant part of the grounds the bees stuck in Tabby's fur, and about once in two minutes she would utter an unearthly 'yowl,' and bounce a full yard in the air. Like the parrot that was left alone with the monkey, old Tabby had a dreadful time. Two or three days after the adventure Tabby was caught by her owner, who took her by the neck and threw her near the bee-hive. No sooner did she strike the ground than she gave a fearful squall, and at a single bound reached the top of a fence full six feet in height. There she clung for a moment, with tail as big as a rolling-pin, when with another bound and squall she was out of sight, and did not again put in an appearance for over a week.—*Weekly Telegraph.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (see 2nd page of Advertisements).

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

A NEW REMEDY FOR FOUL BROOD.

'Suum cuique;' 'Let each man have his own;' 'Honour to whom honour is due.'

[2255.] These are mottoes frequently used by bee-keepers—very justly too. The last occasion being in *B. B. Journal*, p. 338, when 'Jottings by Woodleigh' give the credit of this new departure to Mr. W. B. Webster; and when I read the latter gentleman's articles on the subject I must say I could forgive any of your readers for coming to the conclusion that in him we had the veritable Simon Pure, the discoverer of a new remedy for foul brood,—formic acid. I am sure Mr. Webster will thank me for putting your readers right on this point, and I entirely acquit him, in my own mind, of any desire to rob another of credit or to masquerade in garments not his own. Mr. R. Sproule, of Dublin, sent an exhaustive report of his discovery that formic acid had been used by him successfully in the cure of foul brood which appeared in the *Bee-keepers' Record* of June 1st. Mr. Webster must have read this, for he quotes my reply to Mr. Sproule which appeared in the *Record* of July 1st. Well, in the *B. B. Journal* for July 18th appears the anonymous dark-horse passage that the new remedy 'is something quite fresh, not entirely my own doings. . . . It is really marvellous,' and so on; your editorial footnote saying you print it hurriedly from a private letter, so that your correspondent 'may have whatever credit or advantage may accrue from priority of publication.' In the *B. B. Journal*, July 25th, p. 324, Mr. Webster honourably gives the name of his co-discoverer (and of the agent used); but as this is two months after both were made public in your contemporary, I am sure you will, under the justice of the motto so familiar to us, agree that credit for priority must be given to Mr. Sproule. My name happens in the second paper by Mr. Webster, or I should not trouble you with the following remarks without entering into the merits of the question at all. In the paper by which Mr. Webster finds I have been using formic acid, 'for what purpose he does not know.' I say that I used it, as well as sulphuric nitric, benzoic, acetic, and other acids, in experiments *as to what the bees thought of them*, and when I warned experimenters in the use of formic acid, I presupposed they would think not of *dilute* formic, just as they would not think of dilute acetic or dilute nitric had these been raised to the pinnacle of 'new finds.'

I cannot let one sentence on p. 337, August 1st, pass unnoticed, for it is so like my own on July 1st in the *Record*.

'W. B. W.,' Aug. 1, *B. B. J.*

'In my own mind I do not believe that this cure will simply be confined to formic acid. I have an idea that other acids, such as sulphuric oxalate, will have an equal, if not better effect. Of this, later accounts shall be published.'

'R. A. H. G.,' July 1, *Record*.

'If I may offer an opinion, I would advise your readers to try common vinegar (dilute acetic acid) exactly as we are recommended to use the other acids, for it is not so much the *kind* of acid which is inimical to the growth of the bacilli,' &c.

So that your correspondent, for whom I have every kind regard (out of argument), ought not to have the credit of the discovery of formic acid, as a remedy, innocently put to his account by your readers, neither ought he to close up the aperture '*of other acids*' as his own sealed book for future discoveries.

When a *sure cure* has been found out, I may reverse the ordinary procedure and say a little on the DISEASE; as it is such a puzzle to all but those who thoroughly understand it, that you will certainly forgive me for not entering into the question itself; and also for drawing attention to the danger of Mr. Sproule's garments being quietly abstracted, however unthinkingly, whilst he is guilelessly disporting himself in the usually placid waters of the *Record*.—R. A. H. GRIMSHAW, *Horsforth, near Leeds.*

BEE-KEEPING FOR COTTAGERS.

V.

(*Continued from p.* 297.)

[2256.] SUPERS.—These are of two kinds:—

I. Sectional, or

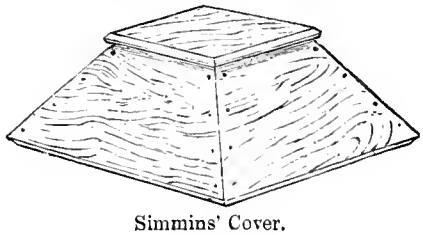
II. Shallow bodies containing shallow frames from which the honey is extracted.

(i.) Sectional supers and sections have been fully described in Article IV., but when sectional supers are used on bar-frame hives they are better double-walled all round, and of the same outside measurement as the hive; and they may then be put on and removed in the same manner as a frame super. When not made in this manner lifts must be used.

(ii.) Frame supers are hive bodies exactly like the brood-chamber (there is no entrance for the bees except through the brood-chamber), and contain the same sized frames; or they are not as deep as the brood-chamber, and therefore contain shallower frames.

The size most likely to become generally used is $5\frac{1}{2}$ inches deep, with a top bar of 17 or $15\frac{1}{2}$ inches according as the hive is double or single walled.

ROOF.—The roof I recommend is a plain 'Simmins.' I like this roof because the quilts may be 1 inch wider than the top of the hive, and when the roof is placed in position the bees are kept snug and warm without the possibility of heat escaping.



Simmins' Cover.

MANAGEMENT.—Before the arrival of the swarm be sure and have—

1st. The hive and its parts well painted outside.

2nd. The floor-board set level both ways; and,

3rd. A sufficient number of frames prepared with full sheets of foundation.

The question, 'How many frames will be necessary?' is almost sure to arise.

To obtain combs evenly built in the frames only as many sheets of foundation should be given as the bees can well cover on both sides. If a 3-lb. swarm were to be placed on six or seven sheets of foundation, the result would most likely be crooked combs.

A good rule is to weigh the swarm and allow one frame more than the number of pounds the swarm weighs. For example, a 4-lb. swarm should be hived on

five frames of foundation. No doubt, particularly in hot weather, some bees will be crowded under the dummy, but that matters little for the first night. On the second day the swarm should be examined, and if the bees require more room another frame should be placed at the side or between the outer frame and the next. The bees will then have sufficient work in attaching the foundation to the sides of the frame, and working it into combs to last them two or three days. As the sheets of foundation become worked out and occupied wtth eggs and honey, further frames should be given, but only between those already worked out and more should not be added than the bees can cover.

During hot weather the bees spread out and cover more combs than during cold weather, and they also cover more combs than sheets of foundation, and it should not therefore be a difficult matter to get a good swarm to quickly work out and cover nine frames. The space remaining in the hive should be filled with two plain wide dummies, one on each side of the brood-nest. By the end of a fortnight most of the frames will be occupied with brood, and if the weather be favourable, supering should not be longer delayed.

SUPERING.—Supers, whether sectional or frame, must be placed on the brood-chamber and removed when filled, or at the end of the honey-flow, as directed in Article IV.

Whether sectional or frame supers are used it will be the bee-keeper's wish to confine the queen to the brood-chamber. When sections are put on early there is not much probability of the queen entering, but with a crate prepared in the style of the cottager-crate, the danger of spoilt sections is very small. Brace-combs are an impossibility, and the sections consequently leave the crates clean, except with the usual daub of propolis.

With frame supers unfortunately there is great difficulty in keeping the queen in her proper quarter; in fact so frequently have the queens in my apiary (I keep none but the most vigorous layers) entered frame supers, both standard and shallow, that I have determined never again to dispense with the use of an *excluding honey-board*.

The frames in the super must be prepared with foundation exactly as are the brood frames, and then the super should be placed over the brood-chamber, on the removal of the quilts.

The first frames will be worked out and nearly filled with honey in about a week if in the height of the season, but whenever they become nearly filled the super must be raised and another similarly prepared, or with empty combs must be placed between it and the brood-chamber. When the upper set of frames are filled with honey and sealed the bees should be driven down with a carbolised cloth, and the super removed bodily. It should then be taken into a house near, and the honey extracted from the combs.

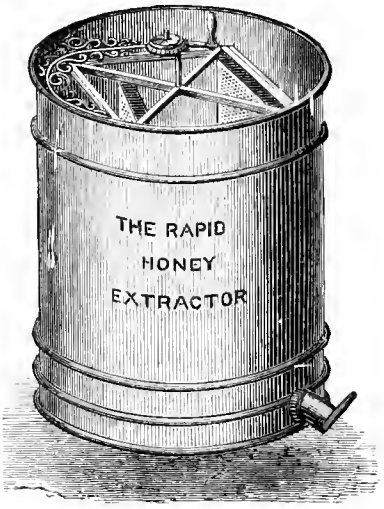
EXTRACTING.—To extract, the cappings should be removed with a sharp uncapping knife, which has been made hot by being placed in hot water, and of course wiped dry before being used.

After the cappings of the cells have been removed from both sides of the comb two combs at a time are placed one in each of the cages of an extractor, and a few sharp turns will throw out the honey.

Uncapping knife.

It is better not to throw the whole of the honey out of one side first, because unless the combs are old the weight of honey pressing against the then empty cells is apt to break the comb.

When all the combs have been emptied they should be returned to the super, and unless the income of honey is lessening, it should be placed between the remaining super and the brood-chamber.



Honey Extractor.

The honey thus extracted should be allowed to stand at least a day in a warm room and then be drawn off into glass bottles, which should be made enticing by a neat, and attractive label.—C. N. WHITE, *Somersham, Hunts.*

'AUNT SALLY' AND THE SWARM.

[2257.] Enclosed is a photograph of a swarm of bees, which came from a hive belonging to Captain Sherwell, of Powyke, Worcester.

On the lawn, and at a little distance from the hives, was suspended 'Aunt Sally,' with her short petticoats; and the swarm, on emerging from the hive, soon settled on the skirts of her ladyship: and as soon as settled Captain Sherwell brought his camera to bear on them, and the picture was of so peculiar a character that I thought it might prove interesting to (especially the juvenile) readers of the *Journal*.—E. DAVENPORT, *Stourport.*

MR. MANUM IN THE APIARY WITH HIS MEN.

[2258.] HOW TO SAVE LABOUR AND TIME IN MANIPULATING HIVES.—*July* 18.—'What are you looking after, Will?'

'I am trying to find this queen. She is two years old, and I want to supersede her with a young one, as you told me the other day to remove all two and three year old queens and introduce young ones in their place. I have now a number of fine ones just commencing to lay, and more queen-cells coming on to take

the place of the young queens in the nuclei. I have looked through the hive twice, but I can't find this old queen, there are so many bees in the way.'

'Well, just close the hive, and allow them to quiet down for a few moments, and then we will try to find her. Never keep a hive open too long; it is better, after looking a while, to close the hive for an hour, and then try again.'

'While we are waiting, Mr. Manum, I wish you would look at No. 10. I have tried three or four times to introduce a queen to that hive, and have failed each time. They ball her as soon as liberated, and I don't wish to lose any more queens by that colony.'

'How long have they been queenless? Can you tell?'

'By the record, seventeen days; and I have kept the queen-cells cut out, as I wished to give them a laying queen; but I have failed in that, and they have nothing now but sealed brood.'

'We sometimes have such obstinate colonies, and it is not many years since I hit upon a plan to make them accept a queen. Have you any virgin queens?'

'Yes, several.'

How to make an obstinate Colony accept a Virgin Queen.—'Very well; you may cage one and bring her here. There, I will now shake all of these bees on to the ground in front of the hive, say two feet from the entrance—there, so. Now, this last comb I will shake near the hive, so that the bees that are on it will attract the others to the hive. Now, when they get well to running into the hive, just let the virgin queen run in with them, and the job is done. I have found that a colony in this condition will accept a virgin queen when they will not one that is fertile. Another way I have succeeded in making such a colony accept a queen is to take out three of their combs and give them a good nucleus having a laying queen, by setting the combs, bees, and queens, from the nucleus at one end of the hive, where I take out the three combs. This should be done very carefully, not to excite the bees either from the nucleus or those in the hive. It is a good plan, when uniting in this way, to drop a few drops of essence of peppermint on the bottom of the hive.'

How to find a Queen in a populous Colony without lifting out all the Combs.—'We will now return to hive No. 10, where you failed to find the queen, and I will try to find her for you. Now watch and see how I look for queens when that is all I am after. There, I first remove the comb nearest to me and set it against the hive near the entrance, after first looking it over for the queen. Now I cast my eye over the side nearest to me of the next comb, and carefully move it toward me to the side of the hive in the place of the first comb. I raise it barely enough to move it; at the same time, I look for the queen on the side of the third comb which is in sight, by the removal of the second comb, and at once look on the opposite side from me of the second comb, and then raise the third comb and set that in place of the second, and quickly look at the side of the fourth, and so on through the hive until she is seen on one of the combs, when it is quickly raised, and the queen removed. I can find queens in this way much quicker than by lifting the combs out of the hive; but if I do not find her when going through the hive in this way, when returning I lift out each comb and look it over carefully until she is found, or the combs all looked over and placed back where they belong, when, if she is not then found, I close the hive for a short time, as I told you to do with this one. There! she is on the fifth comb. Now look at her before I lift out the comb, and see how plainly they can be seen in this way.

'Here is another thing I want you to observe; that is, that *queens have red legs;* that is, the lower half of their legs is a dark brownish red, while drones and workers all have black legs. This fact will sometimes help you to find a queen where the bees are very thick, and cluster over her; so then, when you see a bee with red legs you may know it is a queen.

'She is a nice queen, and it seems too bad to discard such a fine one as she is; but she must go. I would rather have young ones to carry a swarm through the spring. Now, just at night you may give them another queen.'—A. E. Manum, *Bristol, Vt.*

BEE-KEEPING IN ULSTER.

[2259.] The improvement that has taken place in bee-keeping in most of the counties of Ulster becomes more and more manifest each year. Scarcely a flower or cattle show is now held in the province at which bees and honey are not exhibited, and the latter is always in some of the many forms that can only be produced in a modern bar-frame hive.

The first, in point of time, of these shows is the North-east of Ireland Agricultural Association, which meets in Belfast on the 20th of June, and where bee-keepers have for some years, in spite of the very early date, been fairly well represented. And it is pleasing to note that the entries of the present year have been more numerous than formerly. The next was the Armagh Show on the 17th of July, where there were thirty-three exhibitors whose comb and extracted honey was in nearly every instance of excellent quality, and properly prepared for exhibition. The authorities in Ulster do not allow any ornamenting of the sections with paper, but insist that they shall be shown as taken from the hives, the propolis only being removed, and in every case protected by glass. Well, the third has been the great annual show at Strabane on July 24th, where the bee-keepers showed no less than forty-four lots, some of which were remarkably good. And the most recently held was Bambridge, on the 30th July, where there were forty-four exhibitors of honey.

When the catalogues for these four shows for the last few years are compared a steady increase in the number of entries is seen; and this, the surest index of the spread of the industry, would doubtless have been much larger for 1889 had there been any advance in the price of honey. It is most creditable to all concerned with bee-keeping in Ulster that matters go on as the above facts prove they do. The Ulster Bee-keepers' Association has done good work in the past, when it was known first as the Co. Armagh, and then as the North-east of Ireland; and now with its new and more convenient title it is helping the cause in many ways, and by offering additional prizes at the various local shows, instead of holding only one show of its own in the city of Belfast. The plan is one that ought to work well, and if it succeeds will, no doubt, be extended in its scope.—H. W. Lett.

THE MORALITY OF THE BEE-TENT.

[2260.] On the 1st inst. I visited the Glamorganshire Agricultural Show, and, as an enthusiastic bee-keeper, found my way to the bee-tent. Presently the usual driving commenced, and with it the usual lecture, the former by a lady, Mrs. Gay. The lecturer did his work very well, with one exception, and it is with that exception I now wish to deal. He took particular pains to impress upon his hearers the docility of bees. He didn't seem to have any sort of doubt upon the matter. Bees, he asserted, could be driven without the least danger, provided the driver used care and smoke. Oh, yes! and, to emphasise the statement, he took up a handful of them. Docile? Who could doubt it after that? Some bee-keepers around him, though, could tell a different tale. So very likely could he had he chosen it. He knows better. He knows that they will sting, and that in the end of the season they will sting oftener

than not, be his care and his smoke ever so abundant. Then why conceal the truth? To drive a stock depleted by the losses incidental to a show-yard, and to drive a stock at home and in its full strength, are different matters. In the latter case the driver can hardly escape being stung, while in the former he would find a difficulty in getting a bee to show temper at all. Mr. Gay, I suppose, is not alone in this practice. Very likely he can plead that he sins in very good company. It is wrong, nevertheless. It is unfair and unjust to those who are encouraged by such statements to commence bee-keeping, and it is immoral.

I am almost disposed to question the utility of the bee-tent altogether. Its *raison d'être* is a desire to add to the ranks of bee-keepers, chiefly cottage bee-keepers, whatever the term may mean. A few years ago (say before I commenced bee-keeping) there were very good reasons why the public should have the knowledge of modern methods thrust down its throat, and as a first step to that end the bee-tent was, perhaps, the fittest instrument to use. The last few years, however, have witnessed an enormous extension in the ranks of bee-keepers. I don't think I am wide of the mark in saying that probably there is not in England and Wales, whatever may be the case in Scotland and Ireland, a single county that cannot claim a certain number of bee-keepers of the new school. Around these scattered apiaries new ones are continually springing into being, and it appears to me that in the face of the inevitable fall in the price of honey which another good season or two will bring about, it is highly injudicious to increase our numbers by artificial means.—EAST GLAMORGAN.

CARNIOLANS.

[2261.] I see in a recent *B. B. J.*, Nos. 2239, 2240, 2241, that some bee-keepers have found considerable trouble in Carniolans on account of their swarming propensities.

I have now kept a considerable number of Carniolans for some years. At first I was much troubled by their swarming, but I have at last found out how to prevent it.

(1.) Let the body box of each hive contain not less than eighteen standard frames.

(2.) Always have five or six frames (containing empty comb or full sheets of foundation) in the hive *more* than they are able to cover.

(3.) If it is wished to obtain comb honey a body containing shallow frames should be put on first, and when the bees are well at work in this, put on the section crates *between* the two bodies.

(4.) Never use dummy boards (except in winter); the hives should be filled up with frames containing empty comb or full sheets of foundation.

Giving the bees more room than they actually require is the great secret, and not using dummy boards except in winter.

Messrs. Moore and Tonge (2241) say that soon after making the first artificial swarm, the hives were again full of bees and intent on swarming. Of course if they were full of bees and had no more room they *must* swarm. They (Messrs. Moore and Tonge) seemed not to like the queens to be so prolific. They then made another artificial swarm instead of giving the bees more room, evidently forgetting the great motto for bee-keepers, 'Keep all colonies strong.' It is entirely to this that I attribute the passage at the end of the article—'Honey, I am sorry to say, has not turned out in proportion to swarming.'

Never take bees or brood from a hive to prevent its swarming, this is beginning at the wrong end, but give them more room.

I, however, sometimes allow them to swarm, and by placing first swarms in hives containing two frames of hatching brood and *filling up* the hives with frames containing empty combs, I get increase and honey too. It is seldom any use hiving swarms on frames, even *full* of *foundation*, if honey is to obtained that year.

Even second or third swarms (if they come off a fortnight before the main honey flow, which they usually do with Carniolans) may be built up into strong stocks which will gather a considerable quantity of honey if hived on four frames of hatching brood, and the rest of the hive filled up with empty combs.

Finally, I believe that almost the whole of the faults attributed to Carniolans are due to mismanagement. They are splendid honey-gatherers, grand winterers, very gentle, the queens exceedingly prolific (I have got fourteen frames full of brood in one of my stocks), and the bees seldom rob. I consider Mr. Benton's the gentlest strain of Carniolans I have come across.—A YOUNG BEE-KEEPER.

Echoes from the Hives.

Bildeston, Ipswich.—The year 1889 has been a very good season for honey in this district. I have only three stocks, which have yielded upwards of 250 lbs. in sections and extracted. I took my first sections off in May, twelve out of twenty-one well filled, and by the 17th of June I took from another hive a glass cape beautifully worked, and weighed upwards of 19 lbs. nett. I do not think this a bad take of honey for a novice. I may add I had only one swarm, which I sold.—R. W. H.

North Leicestershire, August 5th.—The honey-flow suddenly ceased after the rain fell in the second week in July; and although the fields were still white with clover the bees remained at home until the hot weather returned on the 27th July. Since then the bees have recommenced working on the clover, and, according to some reports, they are also busy on the blackberry blossoms. Curiously, the limes, though swarming with humble bees, have been entirely unvisited by the honey-bee. The yield of honey is large, but not so large as at one time was anticipated. The quality is fine; colour a shade or two lighter.—E. B.

Rerlin House, Donegal, August 1st.—My bees came through the winter fairly well, but some hives queenless, and I can hardly account for the cause, as they were put up all right, and I very rarely keep queens over their third year. By uniting I had them pretty strong early in the season, in hopes of a good one; and as I go in principally for extracted honey, I had hives with sixteen frames, Langstroth size—eight for brood and eight on top for extracting, and full of bees from top to bottom; but, notwithstanding all this, there has been very little honey. The regular honey flow did not set in till the 16th of June; before that the bees were not able to get sufficient to keep them going. The weather changed the first week in July—unsettled and cold—and scarcely any honey has been brought in since, except from the 28th up to date, and it looks like a change for the worst to-day. There is very little prospect of my making up my average of honey this year. I hope to gain something by the heather if the weather is favourable, but I can hardly get as much as last year, which was a good year here in comparison to how bad it was in other places. I expect to winter about forty hives. Some hives commenced to kill off drones a week ago. I am glad I took a first prize at Windsor for my honey; singular the same sample was one of my entries for the Olympia, but was not sent forward through a mistake.—GEORGE TURNER.

NOTICES TO CORRESPONDENTS & INQUIRERS

QUERIES.—Can a queen received by post, that cannot be used at once, be kept with safety in a cage by herself on top of a colony, above feeder hole shut up with wire cloth, with only a paste of honey and sugar for food?

How long could a queen be kept safely in such a position on said paste strictly by herself, *i.e.*, without any other bees for feeding her? Further, when introducing a queen, is it thought as safe a plan to provide the queen-cage with such a paste as to place it so that honey be in the queen's reach?—J. B. WEBER, 29 *Quai Street, Michel Paris, France.*

[The writer desires to know the results of experiments of any of our readers.—ED.]

RAW HAND.—*Queenless Stock.*—It is desirable that you should ascertain the presence or the absence of the queen; if absent, purchase another, and introduce her.

Q. R.—*Law of Patents.*—The patent must be novel, and the patentee must be the true and *first* inventor.

O. A. P.—1. *Foundation.*—There are two kinds of foundation. For brood-frames it is not important how thick the foundation is, and for brood or stock frames from four to six square feet to the pound is used. Sections require a thinner foundation, which averages about twelve feet to the pound. 2. *Woodbury Hive and Frames.*—The hive is, or was, 14½ inches square and 9 inches deep, inside measurement; the frames 13 inches long and 7½ inches high, inside measurement. 3. *Extracting from Brood-nest.*—Many of our best apiarians prefer to refrain from extracting from the brood-nest, leaving the honey there for the winter supply. 4. *Winter Stores.*—About twenty-five pounds. 5. *Show-case.*—We could not tell its value without having the opportunity of seeing it.

S. P. J.—1. *Driven Bees.*—If the driven bees are shaken off in the front of hive placed in the desired position, and then allowed to run in, the bees will not return to their former location. It would be as well to use a board or a glass to make them note their new domicile. 2. *Dried Bees.*—The presence of a few dried-up bees in a large hive does not indicate foul brood. 3. *Queens dilatory in Laying.*—Queens have been known to be more than eighteen days without beginning to lay, and have become prolific queens.

E. RENWOOD.—1. *Apiary.*—The size of the apiary should be in proportion of the amount of forage in the neighbourhood. With a plentiful supply of clover and honey-yielding trees, there would be little danger of your overstocking it. 2. *Transferring Bees.*—Your suggested mode of transferring bees would prove effective.

J. J. K.—*Weight of Bees.*—25,000 bees, weighing about five pounds, or about seven quarts, constitute a good colony. They should have about twenty-five pounds of stores to enable them to stand the winter. 2. *Sugar.*—We prefer refined crystallised sugar: preferably that known as Duncan's Pearl. 3.—*Improving Strain of Bees.*—In Cowan's *Guide-book*, pp. 132-139, you will find the excellencies of Italian, Carniolan, and other foreign bees, fully set forth, please consult its pages. As Sir Roger de Coverley says, 'Much may be said on both sides,' so may we as to the respective virtues of Ligurian and Carniolan bees.

HILL.—We should prefer that the conductors, or committee, of the show should determine the points at issue. A 'cap' is a straw super.

J. DOWNING.—*Bee Flowers.*—Arabis, limnanthes, wallflowers, winter aconite, crocus, aubrietia purpurea, A. graeca, anemone hortensis, willow, repeta, iberis sempervirens, myrobella plum, phacelia tenacetifolia, &c., will all be found useful.

GEORGE BARTHORP.—*Queen cast out of Hive.*—As your colony is casting out drones it is not queenless. We should think that the queen you found belonged to some little benighted cast which had tried to enter your hive. Examine the hive and see whether the queen is there. 2. *Horsham for Bee-keeping.*—All this district is very favourable for bee-keeping. 3. *Brood-rearing.*—The queen breeds continually from Jannary or February until October, commencing with just a few eggs and gradually increasing her daily quantity until about first week in July, and then as gradually falling off until October. She does not lay eggs in batches.

H. H. L.—*Destroying Drones.*—The bees will do this; if they do not, you may reckon that the hive is queenless.

E. B. DOWNER.—1. *Black Honey.*—The honey is of an excellent flavour, but its colour renders it unmarketable, but it could be used for some confectionaries. 2. *Feeding Back.*—When feeding back honey to bees for storage in the sections, you may reckon upon losing quite a quarter of it, this quarter being partially consumed by the bees at time of storage, and partially stored away in other portions of hive. 3. *Fermented Honey.*—Every food stuff in a state of fermentation is reckoned to be unwholesome, and we quite agree with this opinion, as few people can eat such without feeling some ill effects. Bees will take honey if slightly fermented, but not if wholly so, as then it is vinegar, but even the former when stored by the bees does not lose its acidity. We should not think of feeding bees on fermented honey. Why not make some vinegar of it? 4. *Boiling Honey.*—If honey is boiled the flavour is entirely destroyed.

AMATEUR.—1. *Bruised Fruit.*—The bees are very fond of the saccharine fluids from broken grapes, gooseberries, &c., which they convert into honey. 2. *Removal of Sections.*—The crates of sections should be removed at the close of the honey season. 3. *Empty Sections of Honey.*—Sections can be emptied of the unsealed honey by means of extractors gently revolved.

HONOUR TO DR. DZIERZON—Dzierzon, born in 1811, is still living a retired life in Brieg, Silesia, where he has been for several years. The University of Munich has awarded him the diploma of Doctor of Philosophy, as a reward for his numerous scientific works, and for his theory in regard to parthenogenesis.

SHOWS TO COME.

BEES, HIVES, HONEY, ETC.

August 6th, 7th, and 8th.—Yorkshire Agricultural Society, at Hull. Secretary, Marshall Stevenson, York.

Aug. 17.—Crystal Palace. Secretary, Mr. Broomhall, 1 Norfolk Street, Strand.

August 20th and 21st.—Shropshire Bee-keepers' Association at Shrewsbury. Sec., W. G. Preece, Shrewsbury.

NOTTS ASSOCIATION.

Aug. 15.—Woodborough and Epperstone.

Sept. 5.—Greasley and Selston.

Hon. Sec., A. G. PUGH, *Mona Street, Beeston.*

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Editorial, Notices, &c.

A NEW ENGLAND APIARY.

By SAMUEL CUSHMAN.

Addison County, Vermont, celebrated for its pure-bred merino sheep and horses, also stands high as a honey-producing region. The heavy clay soil favours an abundant growth of white clover, which usually yields large quantities of the finest honey. Basswood trees also abound. The surplus honey yield being of short duration and very heavy, allows quick work by the bees, which insures delicate white comb and, with good management, completely filled boxes. This, with its fine quality, gives Addison comb honey its justly-deserved reputation. Numerous farmers, and a few specialists scattered about the county, keep bees. In some cases 200 colonies are kept in one yard with good results, while from forty to 100 is the usual number. Many with no love for the pursuit, but who have engaged in it simply for the dollars and cents to be made, by following the instructions of leading bee-masters, have found it as profitable, or more so, than any other branch of their farm-work, and now market their ton or two of comb honey yearly. The specialists who run a number of large yards in different locations, and make it their principal business, have also been successful in securing from ten to twenty tons of honey in a single good season.

The most extensive apiarist in this section, and probably the one having the largest number of colonies in New England, is A. E. Manum. He commenced in 1870 with two colonies, and, although like other bee-keepers he soon found that a good season was usually followed by a poor one, his success led him to extend the business, and in the spring of 1885 he had in five different yards 470 colonies. That season was an unusual one, and he obtained from them nineteen tons of comb honey and three tons of extracted honey, and an increase in bees, making 850 colonies in the fall. This large crop was nearly all gathered in twelve days, and one of the best colonies on scales at yard No. 2, while working on basswood, gathered in one day 33 lbs., and in four days 124 lbs. The largest yield from one hive was 228 lbs. of comb honey. His greatest yield in 1883 was 312 lbs. of comb honey from the bees in one hive. As an offset to this and the previous good years, each season since 1885 has been a poor one, and his bees have not paid expenses. With a few exceptions, in favoured localities, bee-keepers everywhere have fared the same, although three such poor seasons in succession are unparalleled in the history of the industry in this country. Mr. Manum's out-apiaries are from two to sixteen miles from the home yard. At the start Mr. Manum tried all the different hives, and studied and experimented to get the best for practical work. By combining, modifying, and inventing new features, he turned out that which met his ideas, and which, with a system of management suited to it, is now used in all his apiaries, and many others. The hive is double-walled, and consists of a stand, inner hive or brood-chamber, and an outer case. The entrance is through the stand underneath the brood-chamber, and cannot be clogged by snow, is protected from rain, and by means of a slide can be graduated from 2 in. long by $\frac{3}{8}$ in. wide in winter to 14 in. long by 2 in. wide—the full summer width when the slide is removed. The outer case is moveable, and is in three separate sections. The roof is of clapboards. In each gable is a 2-in. auger hole for ventilation. This is protected by a wire-cloth funnel projecting outward, which allows the bees to leave one at a time, but not to enter. This is an important proviso when bees are hastily shut in, or when surplus honey is removed. The 3-in. space between the walls is filled with chaff or sawdust, which is allowed to remain winter and summer. When damp, it can be readily replaced. Having so many loose parts, the hive can be moved without heavy lifting, and when properly packed, is sufficient protection from New England winters. The hive stands rest on two lengths of joist to keep them off the ground, and are set perfectly level. Hives once located are not afterwards moved, unless carried away from the yard.

The brood-chamber is covered by a board when the sections for honey are not in place, and contains twelve hanging frames 12 in. long by $9\frac{1}{2}$ in. deep. The surplus arrangement consists of cases, at one end of which are a follower and wood screw, by which the sections are tightly clamped together. Each section is supplied with a full sheet of foundation, and between each row are placed thin wood separators to insure perfect combs. Mr. Manum was probably the first to make a white poplar dovetailed section, which is now so much used. Previous to this they were of pine, and made to nail. This section, put together with glue, is not only the strongest, but the neatest section in use. Two of the Bristol clamps cover the brood-chamber, and can be tiered up as high as desired. Mr. Manum has lately discarded all but one-pound sections. When filled with finished combs, the cases are disconnected from the brood-chamber, and before they are removed to the honey-house, the bees find their way out at the bee-escape in the gable. A cord and a simple device allow the hive cover to be tipped back instead of having to lift it off bodily when opened.

The hives are 5 ft. from each other, in rows 12 ft. apart. To prevent upsetting by heavy storms in winter, a large cord is thrown across the roof, and fastened to a stake driven in the ground on each side. During the winter everything needed in the summer campaign is

prepared ready to be quickly supplied to the different yards by the teams, which are then constantly on the road. In the spring, at certain intervals, Mr. Manum and his assistants spend a day in each apiary, giving that aid to colonies which is so important. These rounds are made more and more often, until the swarming season is about to commence, when one competent person is placed in charge, and is in constant attendance for six or eight weeks, or until the honey-season is over. Board is usually obtained at the farm-house near which the yard is located, and the helps are continually employed in hiving swarms, putting on or taking off boxes, and in attending to other necessary details. As experienced men are not always to be had, many knowing nothing of the business must be taught, and as they usually commence for themselves as soon as really competent, this instruction must be given again and again. After a few weeks' instruction, some are able to do nicely the remainder of the season with occasional looking after. Women are also employed, and one who did not know a queen from a drone when she commenced, took entire charge of 116 colonies the second season.

At each apiary there is a building containing a honey room, where clamps of honey are temporarily stored, and a work room, where fixtures not in use are also housed. In each yard one hive stands on scales, of which a close watch is kept after the clover and basswood blossoms open. On the front of every hive, in plain black figures, is the colony's number, while inside is a record of the colony, its origin, age of queen, date of each examination that season, and their condition when examined. This is written in abbreviated characters on a piece of section or smooth board, and laid on the packing. The apiarist also keeps in a book a list of the colonies casting swarms, and of those requiring special attention at a certain time. The wings of all queens are clipped to prevent their going off with the swarms. When the latter attempt to leave, they are caught by an arrangement consisting of a wire cloth cage, fastened to a pole. It is made to stand anywhere by two legs, which fold up when not in use. A sufficient number of these are always at hand. When a swarm issues, the queen is caught on the ground near the hive, and placed in the cage of the catcher, which is stood or held in the midst of, or near, the flying swarm, and the bees soon settle upon it. They are then left, and attention is given to the others, which usually issue at about the same time. If the swarm has gone some distance, or clustered in the top of a tall tree, it will soon return, as it is without a queen. So the catcher containing their queen is stood in front of the hive from which they came, and as they return, they find her and cluster upon it. To make this more certain, the entrance of the old hive is covered with a cloth. This plan differs from that of most bee-keepers, and enables Mr. Manum to quickly handle many swarms. In hiving when time is more plentiful, about a third of each swarm is shaken back in front of the old hive, and the balance of two or three swarms, with one queen, is hived in a new hive. As this makes a powerful working colony in the new hive, abundant room in sections is immediately given.

A close watch is kept of the apiary, and more storage room is added as fast as used to advantage, and the filled clamps are removed as soon as they are completely sealed. A large crop can be cut off from communication with the brood-chamber in a short time, and when free from bees, is carried to the honey-room, and afterwards carted to the central honey-house. It is then scraped clean of propolis by women and girls, and after being graded, is stored in the honey-room to ripen. In the fall, wood sides of white poplar instead of glass are fastened to each section, and they are shipped to market in white poplar crates holding twenty one-pound sections. Sections full of nice white comb, those full of darker combs, and those light in weight, are each crated separately, and the crates are marked 'Green Mountain,' 'Comb Honey,' and 'Light Weight,' according to contents. A few of the very best and most perfect are selected from the first quality, and go as the 'Snow Flake' brand.

As most of the crop is secured as surplus, and but little is gathered after its removal, that remaining below is no more than the bees need during the season; therefore, to keep them alive until spring, each colony must, in early fall, have its ration of sugar syrup. This season twenty-eight barrels of the best granulated sugar were required to insure sufficient winter food. For feeders, maple syrup cans, with small holes punched in their bottoms, are used. Three short legs of tin raise them enough to give the bees room to get at the holes. These cans are filled with syrup, and set over a hole in the cover of the hive, and are renewed until the proper amount of food is consumed.

After the honey-season, instead of a constant attendance at the out-yards, frequent visits are made, as in the spring, and are continued until the bees are snug for winter. Then an occasional trip is made on a warm day when the bees can fly to see that all entrances are clear.

Mr. Manum has at present about 700 colonies in eight different yards. The number in each is limited to 125 in the fall. The colonies in excess of this number are either sold or carried to a new location. For this work a double and a single team are used. By the use of racks, which hold a second tier, the former takes fifty colonies, and the latter twenty-three colonies. Before loading, the frames are immoveably fixed, and a sheet of muslin is tacked over the brood-chamber to give air, while in very warm weather a rim covered with wire cloth is necessary to their safety. Mr. Manum's bees are mostly Italians, although in some apiaries there is a trace of black and Holy Land blood. He is about to test a few Carniolan queens. The working queens are reared from the best Italian colonies, which are selected out of this large number as possessing unusual excellences. I saw many fine large queens a shade darker than the average Italians, having very plump and thick-set bodies. In each yard, distributed among the regular hives, were many nucleus colonies—the temporary quarters of surplus queens. Mr. Manum has planted honey-producing crops on a limited scale, but is not yet certain that they can be made to pay.—*American Agriculturist.*

USEFUL HINTS.

Weather.—During the last fortnight some peculiar weather has been experienced by bee-keepers. The first week was on the whole favourable, being at times very hot, and the clover came along famously; but the last week has been for the most part unfavourable owing to the heavy storms of rain, in some cases accompanied by high winds and a low temperature.

Supers.—These should be carefully watched and all sections removed as fast as completed, more especially where no heather honey can be gathered. All propolis should be cleaned off at once, and the sections generally made quite ready for market before being stored away. There should be some excellent sections harvested this year, and those who can provide good storage for them will find it pay best not to crowd them on to the market at once.

Extracting.—No time should be lost in securing all honey that is to be taken from the brood-nest, as any further postponement of this operation does not admit of the necessary autumn breeding being carried out during the best possible period for the well-being of the

stock next spring. Extracted honey should be allowed to stand in an upright vessel for three or four days before being bottled to allow of any thin honey and small particles that have passed the strainer to rise to the top. Fresh bottled honey can be considerably brightened by setting the filled bottles in warm water for some time. This helps to expel the air which has become encased in the honey during extraction and straining. As we have before advised, all honey which it is intended to exhibit at a show should be bottled (if possible) not less than a week before the date of the show. For family use we find 14-lb. jars the most useful to store our honey in.

Marketing Honey.—The old cookery books say 'First catch your hare and then cook it.' Possibly it is easier for many of our readers to get their honey harvested than it is to dispose of it at a paying figure. The profusely furnished bee-keeper who buys nearly every new and resuscitated novelty may safely be dismissed from our calculations, for we are certain that no fortunate succession of good seasons, although unaccompanied by any winter losses, would ever enable him to make it pay; but for the hard-working bee-keeper who works economically, we think a profit is to be obtained. The main difficulty is to bring the seller and the purchaser into touch. For many reasons we strongly advocate the development of a purely local trade in the first instance; and if this is properly attended to and the honey done up in a neat manner, it will as a rule be found that recommendations will follow, and eventually good customers from a distance will be secured. Then is the time to reconsider your tariff. The expense and risk of freighting honey by rail will always be a strong deterrent against the development of custom far from the centre of production. Doubtless some who produce more honey than they require for home use, still consider it derogatory to sell any of their surplus to their neighbours. These qualms of an over-sensitive conscience can frequently be alleviated by making an exchange as between honey and fruit. Recently we were in a shop where the grocer had honey for sale. The sections were set out on the counter haphazard, many were inverted, and as a consequence the cells not fully sealed over were leaking badly. On offering an explanation the shopkeeper became quite interested and expressed his thanks accordingly. Those who have sections for sale should see that the shopkeeper is made aware which is the right end up.

Heather.—Those who are fortunate enough to be near the heather should now be reaping a rich harvest. A few days since we enjoyed a long walk through the heather, and found the bees hard at work among it, also on the larger-flowered ling. At one spot, where the thistles had taken possession of about three acres, the bees fairly swarmed upon them. Our American and Canadian cousins speak of their thistle honey much as we do of our clover honey. This was the first time we had seen a fair sized plot, and it was very interesting to see the bees so busy on the much-despised plant.

Re-queening.—Where any doubt exists as to the fitness of the present queen a fresh one should be introduced at once. It is now too late to raise queens, so unless a surplus one is on hand, an order should be given for one immediately, or it may be found impossible to fill the gap. These re-arrangements should have been carried out ere now.

Wasps.—Lately these pests have been making themselves more noticeable and should be killed off at every opportunity. Judging from general reports, their numbers are very low this season, and it would be a pity if vigilance is at all neglected this autumn to destroy as many as possible.

Hives, &c.—These should be thoroughly overhauled, so as to have everything shipshape and sound for winter, an extra coat of paint on the roof will be found good outlay. Carefully stop any crevice with good putty, so that spiders may have less chance of finding a residence. Keep the ground round the hives tidy, and in case of an autumn drought have water standing about for the bees to get a drink as may be necessary.

General Prospects appear much better than for the last two or three years, and from the profuse fertility of everything bees should have a good opportunity of going into winter quarters in good heart. Autumn feeding should be prepared for, sugar obtained ready for use immediately extracting is done. Sugar is much higher in price this season, but it will be found cheapest to buy the *best cane* sugar.

Condemned Bees.—Although we always have a fear of introducing foul brood when placing these in our apiary, yet they come in very useful, and if carefully fed with medicated syrup the risk is reduced to a minimum. Under no circumstances would we bring home bees *known* to have foul brood.

A MORNING'S ADVENTURE.

What a thousand pities it is that bees are not a more marketable commodity! One can sell a watch, a horse, a pig, or almost anything else for something, but bees cannot apparently be got rid of at times for love or for money! When farmers and fruit-growers have learnt the important part bees play in the fertilisation of some of their crops, as well as their fruits, then perhaps they will take proper care to have a good supply of bees at no great intervals throughout their grounds. But the subject of fertilisation is one about which at present very little is generally known, so that bees are very difficult to sell on an emergency. I was sorry to learn that the hives and bees in Mr. Raynor's apiary went almost for a 'song.' By some strange oversight the sale was fixed for Ascension Day, a day on which the clergy could not be expected to attend. I fortunately secured a good stock through Messrs. Dines & Son, the hive manufacturers of Maldon. They packed the hive most carefully, and it has repaid me a hundred-fold and more. I have had a strong swarm, which has given me a large quantity of honey, and I have made an artificial swarm, which is also thriving. Thus I have three hives instead of one.

A few days since I had an application to buy six or eight stocks of bees, most of them in skeps. Every one, I was told, had been asked to buy, but no one would. The people were leaving,—must leave, on the morrow. The money was sorely wanted; would I not buy? I found the greatest difficulty in procuring bees early in the season, but now my stocks are almost enough for my ambition. Yet would I not buy, if only to help a poor man in trouble? Well, I could not 'buy a pig in a poke.' I would call on the morrow early, examine, and perhaps take the hives away.

Early on the morrow I found myself crossing a river, and soon making my way on a lovely summer morning along roads skirted with glorious fields of golden grain, resplendent in the flood of light which came in an ever-increasing tide from the eastern horizon. The horse seemed to sympathise with the brightness around, and brought my man and myself in good time to our destination. As we approached we could not but notice all the sad signs of a derelict farm. Thistles in full bloom (not, I need scarcely say, the Chapman honey plant), docks loaded with the well-known red-coloured seed, nettles, and other abominations, reigned supreme on all sides. Here, by-the-bye, I may remark that I hope the steady influx of industrious Scotchmen into Essex, headed by Mr. Primrose M'Connell, will make a change for the better.

Just at the time appointed we arrived. 'Where is the master?' I inquired of the mistress. He did not think that 'gentlemen' were ever so early, was the reply. What strange notions some people have about 'gentlemen!' The 'Grand Old Man,' who, whatever his politics may be, is a 'gentleman' to the backbone, is in his study every morning at seven o'clock.

'Where are the bees?' We wended our way towards the garden, and, as usual, found the apple-trees loaded with fruit—the result of bee fertilisation. Before very long the owner arrived, and a bargain was struck. I strongly urged the 'parting guest' to take all the hives he could with him. 'One he might; the others must be got rid of at any price.' So my man and I began to load. All went well until we placed a very heavy box-hive (of home manufacture) on the cart. Then one of the sides gave way! Various strangers were arriving to assist in the general removal. The shelter of the house was never more welcome! Soon not a soul but ourselves was to be seen. The horse fortunately had been taken out of the cart. Should we put him in after we had patched the broken side? We thought we would try; so we brought him forwards. Within a minute he was evidently stung on the nose, and his movements were naturally somewhat peculiar! It was evident that we must abandon both cart and bees for awhile; so we turned homewards, walking all the way, to the wonder of our rustic friends, some of whom, no doubt, supposed that we had come to grief, as we led the harnessed horse without the cart.

In the evening the coachman and gardener succeeded in bringing the cargo safely into harbour without an accident. But they also brought the news that in the course of the day the enraged bees (some from a hive which we did not remove) had fastened on a strange horse, that he had run away, smashed his harness, and I know not what besides.

Let me conclude with a question of morals and of law; Am I responsible for the damage? I had paid for the bees, so that they were mine. But I am told that the runaway was not under the immediate charge of any one at the time that he took to flight. The owner of the horse must have seen the bees, possibly have felt them! If he left his horse unguarded, was not he to blame? Am I to be responsible for the vagaries of a vagabond bee? My idea is that the case is one for a compromise, but perhaps others may regard the matter in a different light.—E. Bartrum, D.D., *Wakes Colne, Essex.*

P.S. The advent of a large number of Scotchmen into Essex is a matter of so much interest, that a few details may interest your readers. Two colonies have settled in the county, one near Chelmsford, the other between Ongar and the Epping Forest. Mr. Primrose M'Connell, besides being a scientific farmer and an admirable writer on agriculture, holds, I believe, a lectureship of some kind at Oxford. These Scotchmen have laid down a great part of their land in 'leys,' or (to quote the *Agricultural Gazette* of July 29th) 'in four years' layers, often allowed to lie for six years.' As I have adopted a similar plan on my small farm I am naturally interested. People who know these Scotchmen tell me that the fathers and sons work on the land, the daughters milk the cows, and that they bring both intelligence and industry to their daily toil. They are able to live while others starve. Further information may be found in the *Agricultural Gazette* quoted above.—E. B.

JULY JOTTINGS, &c.

By Allen Pringle.

A Swarming Epidemic.—This season will be remembered by the apiarist as *the* swarming season *par excellence*. The 'little busy bee' is fairly crazy with the swarming fever, and swarms as though that business were the chief end of her life. I thought I knew something about the 'prevention of increase,' and still think so; but— but— when the bee says to herself,

> 'I must and will swarm out of this,
> For "the fit comes on me now,"'

swarm she will, and we may make the best of it. And thus is the precious time which ought to be utilised in the harvest field wasted. Nor is the fever allayed by humouring the patients in reasonable measure. Provided with a new, cool, and airy home, with a good start in life, avails not, and out they come from it next day after being put in possession, and next day again, and so on. This is a general complaint this season, and my sincere sympathy is hereby extended to those unfortunate apiarists who are opposed to queen-clipping, for if the clippers' troubles have been multiplied and vexations during this swarming season, what must have been the tribulation of the non-clippers! To my certain knowledge fine, large, prime swarms betook themselves to the wood and were lost in spite of the most desperate exertions of the owners.

The Crop.—So far in Canada, and probably in most of the neighbouring States, is scarcely an average one. The summer yield, including the two staples clover and basswood or linden, is over, and the full yield with buckwheat as the staple is at hand. The latter promises an abundant crop, and is just now coming into bloom. The Japanese has been tried here and in the States, found superior, and is likely to supersede our old varieties. Buckwheat, though in bad odour with some farmers, is grown considerably in Canada, and last season it proved the salvation of not a few farmers in adjoining counties, which suffered so terribly from the prolonged drought, which had literally parched up other kinds of grain so that acres and acres of it were ploughed up and buckwheat sowed thereon the latter half of July, when the rains commenced. And as the frost held off well in the fall in most places, the consequence was an abundant crop of buckwheat, which was verily a 'godsend' both to farmers and bees. A prejudice exists against buckwheat honey for winter stores; but my experience fails to justify the ill repute. For many years I have wintered on buckwheat honey, and have really nothing to say against it as winter food for the bees. On the contrary, there is at least one advantage it possesses over the higher grades of honey as winter food, and another which favours the apiarist's pocket. The first is, that it is not so liable to granulate in the comb in winter as the lighter grades; and the second is, it never commands as high a price in the market.

The King-Bird.—Is he an enemy about the apiary or is he not? Is he guilty or not guilty? That is the vexed and disputed question. I am, however, settled on the subject till I get new light. The 'King-bird' eats drones and queens without compunction, but draws the line at the workers. That is my indictment of him. Nothing but demonstrative facts will avail to shake that conviction. How do I know he eats drones? I have seen him and found them in his crop. How do I know he will not risk a live worker as a sweet morsel under his tongue? Because I have seen them attack him and chase him to his perch time and again. They recognise him as the enemy of the yard on general principles, but not as an individual enemy. How do I know he will eat queens? By knowing him to dart into the midst of a swarm of bees on wing having a flying queen, capture his victim and retire, thus breaking up the swarm which returned to the hive. Although I did not actually see him take the queen, the inference from what I did see and experience at different times is so obvious that I stand convinced. A significant fact of that experience

is that the more numerous the king-birds around the apiary during the bridal flight of young queens, the more of them fail ever to return. But the queen has a sting as well as the worker? Yes, but we all know how sacredly careful she is as to the use to which she puts that weapon, and how loth to profane it on the democracy. The proud queen is safely away in 'King's' crop before she has a thought of unsheathing her sword. In fine he is guilty, and I use powder and shot on his kingship whenever I can get him in range, and my advice to every bee-keeper is to do the same without compunction.

Young Queens.—This is the season for young queens. They are as fine and robust a lot as I ever saw. The swarming fever has the advantage of developing splendid specimens. And they mate successfully without loss, and promptly begin to exercise the natural function. There is none of the trouble or loss this year amongst the young queens, which sometimes vexes the soul of the bee-keeper; nor have I had any trouble in introducing either virgin or fertile queens. This is the year for requeening, and it pays. I have not yet got quite round to friend Cowan's short-lived queen theory, but I am on that road. This is '89; when I find a queen registered '88 clipped,' still doing well—a splendid specimen—I hate to 'weed her out.' It seems to be taking her off 'before her time.' But any queen not up to the A1 standard, though marked '88, had better be sacrificed. We have all, perhaps, noticed how a queen which may have been very prolific the whole preceding season through, falls off the following spring, entailing loss before she can be superseded. This rarely happens with a queen of the previous season, but is not uncommon with older queens; hence the wisdom of superseding all queens of the preceding year, which are not fully up to the mark.

(To be continued.)

ASSOCIATIONS.

MIDDLESEX BEE-KEEPERS' ASSOCIATION.

North East Province.

The third annual show of honey, hives, and appliances of the above province was held on August 10th, by kind permission of P. P. Hasluck, Esq., in the grounds of The Wilderness, Southgate. The afternoon was remarkably fine, and the grounds were well suited for the purpose to which they were that day devoted. Mr. S. J. Baldwin, Expert-in-Chief B.B.K.A., gave lectures in the bee-tent on bees and their management in his accustomed masterly and lucid style. He also officiated as judge. A band was in attendance, which added much to the general enjoyment. The company was very numerous, and the show may be pronounced to have been a great success. This success was in a great measure due to the great pains taken by Mr. Hasluck, who spared neither trouble nor expense to bring about this desirable result. The show of honey, above five hundred pounds, was very creditable to the exhibitors.

The following is the list of awards:—

Open to all members of the M.B.K.A. residing within the county for honey collected by bees within the county.—Class 1.—(Five entries.) Best twelve 1-lb. sections of comb honey. 1st prize, J. T. Harveyson, Finchley, silver medal of the B.B.K.A.; 2nd, W. Pye-English, Tottenham, bronze medal of the B.B.K.A.; 3rd, Major Fair, Teddington, certificate of the B.B.K.A.

Open to members of the N.E. province of the M.B.K.A. only.—Class 2.—Best twelve 1-lb. sections of comb honey. 1st prize, J. T. Harveyson, 20*s.*; 2nd, W. Pye-English, 10*s.*; 3rd, H. Livermore, Enfield, 5*s.* Class 3.—Best twelve 1-lb. glass bottles or jars of extracted honey. 1st prize, W. Pye-English, 20*s.*; 2nd, J. T. Harveyson, 10*s.*; 3rd, H. Livermore, 5*s.* Class 4.—Largest and best display of honey taken from one apiary. Only one exhibit. 1st prize, W. Pye-English, for 150 lbs. of comb and extracted, 30*s.*

Open to cottager members of the N.E. province only.—Class 5.—Best six 1-lb. sections of comb honey. 1st prize, A. Taylor, Southgate, 7*s.* 6*d.* Class 6.—Best six 1-lb. glass bottles or jars of extracted honey. 1st prize, A. Taylor, 7*s.* 6*d.* Only exhibitor.

Open to members of the Southgate district of the M.B.K.A. only.—Class 7.—Best six 1-lb. sections of comb honey. 1st prize, Mrs. Davis, 15*s.*; 2nd, J. H. Bolton, Southgate, 10*s.*; 3rd, R. W. Clements, 5*s.* Class 8.—Best twelve sections of comb honey. 1st prize, J. H. Bolton, 15*s.*; 2nd, R. W. Clements, 10*s.*; 3rd, P. P. Hasluck, 5*s.* Class 9.—For best six 1-lb. bottles of extracted honey. 1st prize, Mrs. Davis (best in the show), 15*s.*; 2nd and 3rd divided between J. H. Bolton and R. W. Clements, 10*s.* and 5*s.* Class 10.—Best glass super of comb honey. Only one exhibit. 2nd prize, W. Burrows, for four glass supers, 10*s.* Class 11.—Best exhibit of comb and extracted honey. 1st and 2nd prizes divided between J. H. Bolton (110 lbs. of comb and extracted) and R. W. Clements (90 lbs. of comb and extracted), 10*s.* and 5*s.* Clements showed some very good 2-lb. sections in this exhibit.

Open to all bee-keepers in the Southgate district.—Class 12.—Best six 1-lb. sections of comb honey. Only one exhibit. 2nd prize, Miss White, 5*s.* Class 13.—Best six 1-lb. bottles of extracted honey. 1st and 2nd prize divided between J. H. Bolton and A. Taylor, 10*s.* and 5*s.*

Open to members and non-members.—Class 14.—Best exhibit of hives, appliances, &c. Only one exhibit. 1st prize, S. J. Baldwin, 50*s.* A good collection. Class 15.—Best hive, price not to exceed 15*s.* Only one exhibit. 1st prize, S. J. Baldwin, 15*s.* This hive contains two dummies, with twelve frames and two bodies in each. Same hive was shown in a similar class at the Royal Windsor Show.

NEWBURY HORTICULTURAL SOCIETY.

On the occasion of the Show of the above Society, which was held on the Bank Holiday in the picturesque grounds of Shaw Avenue, the Berkshire Bee-keepers' Association held a show of bees and honey. The county is divided into four provinces, and the show was arranged for by the committee of the south province, of which Newbury is the centre. The show was pronounced to be by far the largest of its character held in the district, and but for the fact that a similar show was being held on the same day at Windsor in connexion with the eastern province, it would doubtless have been considerably larger. The committee had the greatest difficulty in staging the exhibits in the space at their disposal, and the tent was uncomfortably crowded during the whole of the day by a constant flow of visitors, who evinced much interest in the many forms in which the produce of the apiary was exhibited.

The price list was divided into two parts, one open to the whole of the members of the County Association, the other restricted to those of the province. The total number of entries were seventy-nine, only a few of which failed to be filled. The classes for the largest and best display of honey from one apiary, which occupied the centre of the tent, was a leading feature of the show, and attracted much attention. Mr. W. Woodley, of World's End, was the only exhibitor in the unrestricted class, and was awarded the silver medal of the British Bee-keepers' Association, this being the third that he has received during the present season for similar exhibits, the others being at the Royal Agricultural Show at Windsor, and the Royal Counties' Show at Horsham. In the second class, in which the exhibits were restricted to apiaries of not exceeding twelve hives, there was a very keen competition between the three exhibits, and the judges had considerable trouble in

making their award. Eventually the difficulty was solved by transferring the unawarded bronze medal in the first class to it, as an additional prize. In the classes for section and bottled honey there was a large number of entries, and these also required much discrimination on the part of the judges in making their award. The observatory hives and the large supers of comb-honey, as usual, attracted much attention, and the classes restricted to small apiaries was an interesting competition. The judges were the Rev. W. E. Burkitt, hon. secretary of the Wilts Bee-keepers' Association, who was appointed by the British Bee-keepers' Association, and Mr. W. N. Griffin, of Reading, late hon. secretary of the Devon and Exeter Bee-keepers' Association, representing the County Association. The committee worked hard in making the necessary arrangements, the burden of which on the day of the show fell especially on Mr. J. H. Wilson, the hon. provincial secretary, and Mr. J. Stradling. The bee-tent of the Association was erected, but owing to the constant succession of showers, little could be done in the manipulation of bees and accompanying illustrations. In connexion with the show there was held an examination for the experts' certificate of the British Bee-keepers' Association, which was conducted by the Rev. W. E. Burkitt. There were six entries, but only four competitors put in an appearance, viz., Mr. A. Canning, Clapton, Hungerford; Mr. A. J. Wallis, Wantage; and Messrs. Stradling and Wilson, Newbury. The result will not be known until the examiner has made his report to the British Bee-keepers' Association. The exhibits were interspersed with a number of flowering plants lent by Mr. Miller, Speen Nurseries. Appended is the prize list:—

Open to all Members of the Berks Bee-keepers' Association.—The best and largest display of comb and extracted honey.—1st, silver medal of the British Bee-keepers' Association, Mr. W. Woodley, World's End. The best and largest display of comb and extracted honey from apiaries of not exceeding twelve hives.—1st, silver medal of the Berks Bee-keepers' Association, Mr. W. Hawkes, Newbury; 2nd, bronze medal of the British Bee-keepers' Association, Mr. J. Rayer, jun., Stanmore; 3rd, bronze medal of the Berks Bee-keepers' Association, Mr. A. Canning, Clapton, Hungerford. The best twelve 1-lb. sections of comb-honey.—1st, 10*s.*, Mr. W. Woodley; 2nd, 5*s.*, Mr. J. Rayer; 3rd, 2*s.* 6*d.*, Mr. A. Canning; H.C., Mr. J. H. Wilson, Newbury. The best twelve 1-lb. bottles of extracted honey.—1st, 10*s.*, Mr. Levi Inwood, Uffington; 2nd, 5*s.*, Mr. A. Canning; 3rd, 2*s.* 6*d.*, Mr. W. Woodley; H.C. Mr. E. Canning, Hungerford, Newtown. The best super of comb-honey, not being sectional.—1st, 7*s.* 6*d.*, Mr. L. Inwood; 2nd, 5*s.*, Mr. Jabez Sopp, Crowmarsh, Wallingford; 3rd, certificate of the British Bee-keepers' Association, Mr. Hawkes.

Open to Members of the Southern division only.—The best twelve 1-lb. sections of comb-honey.—1st, 7*s.* 6*d.*, Mr. W. Woodley; 2nd, 5*s.*, Mr. C. Canning, Hungerford Newton; 3rd, 2*s.* 6*d.*, Mr. J. H. Wilson; H.C., Mr. S. Townsend, Hampstead Norris. The best twelve 1-lb. bottles of extracted honey.—1st, 7*s.* 6*d*, Mr. A. Canning; 2nd, 5*s.*, Mr. C. Canning; 3rd, 2*s.* 6*d.*, Mr. S. Townsend; H.C., Mr. W. Woodley. The best observatory hive with bees.—1st, 7*s.* 6*d.*, Mr. A. Canning. The best moveable bar-frame hive made by an amateur, the cost of material to be stated.—No award. The best 1 lb. bees-wax.—1st, 5*s.*, Mr. A. Canning; 2nd, 2*s.* 6*d.*, Mr. C. Canning; H.C., Mr. E. Canning.

Restricted to Small Apiaries of not exceeding five hives.—The best six 1-lb. sections of comb-honey.—1st, 6*s.*, Mrs. J. Butler, Beedon; 2nd, 4*s.*, Mr. F. Church, Donnington; 3rd, 2*s.*, Mr. F. Hopson, Newbury; H.C., Mr. E. Canning. The best six 1-lb bottles of extracted honey.—1st, 6*s.*, Mrs. A. Jackson, Newbury; 2nd, 4*s.*, Mr. F. Church; 3rd, 2*s.*, Mr. E. Canning.

WORCESTERSHIRE BEE-KEEPERS' ASSOCIATION.

The Annual Show was held at Peediswell Park, Worcester, on August 8th, in conjunction with the meeting of the City and County Horticultural Society. The quality of the honey exhibited was exceptionally fine, and of excellent colour and flavour. Two very large glass supers of honey, sent by Mr. M. Portman, of Astwood Bank, and Mr. Charles Green, of Worcester, were greatly admired. The honey in sections, and also that which was extracted, formed a grand display. No appliances were exhibited, and the prizes for honey were confined to members of the Association only. There was a good attendance at the lectures in the bee-tent. Addresses were delivered by the Rev. W. E. Burkitt, who acted as judge, and examined one candidate as a third-class expert; by Mr. A. H. Martin, the Hon. Sec., Rev. E. Davenport, expert, and the Rev. J. H. Dixon, of Binton, Stratford-on-Avon. The following is the prize list:—

Class 1. Observatory Hive: Mr. Frank Gregory, Stourport, 1. Class 2. Best twelve 1-pound sections of comb honey: Mr. J. H. Cleasby, Offenham, 1; Mr. C. H. Haynes, Hanley Castle, 2; Rev. R. T. W. Brayne, Broomhall, 3; Mr. E. T. Footman, Martley, H.C. Class 3. Best six 1-pound sections of comb honey: Mr. C. H. Haynes, 1; Rev. R. F. W. Brayne, 2. Class 3A. Best twelve 2-pound sections of comb honey: No first prize awarded; Mr. E. T. Footman, 2. Class 4. Best super of honey: Mr. M. Portman, 1; Mr. Charles Green, 2. Class 5. Best twelve 1-pound glass jars extracted honey: Mr. C. H. Haynes, 1; Mr. A. H. Martin, Evesham, 2; Mr. A. Thorpe, Hallow, 3. Class 6. Beeswax: Mr. E. T. Footman, Mr. J. H. Landon, Stourport, equal second; no first prize awarded.

ST. IVES HORTICULTURAL AND ORNITHOLOGICAL SOCIETY.

On Thursday, August 8th, the St. Ives Horticultural and Ornithological Society held its fourteenth annual flower show, at which there was an exhibition of honey, wax, and appliances. The honey exhibition eclipsed expectations, taking the adverse circumstances bees have met with into consideration. It was under the auspices of the Hunts Bee-keepers' Association. The success of this department may be in a great measure attributed to the efforts of the Hon. Sec., the Rev. C. G. Hill, assisted by Mr. C. N. White, of Somersham. The following is the list of prizes:—

Best specimen of English bees, exhibited with their queen in a unicomb observatory hive.—1. C. N. White, Somersham. Best exhibit of comb honey, not sectional. 1, E. Allen. Best six 1-lb. sections of comb honey.—1, silver medal, J. H. Howard, jun., Holme; 2, E. Bull, Brampton; 3, A. Sharpe, Huntingdon. Best six bottles of run honey.—1, bronze medal, Mr. Brown, Somersham; 2, C. N. White, Somersham; 3, E. Allpress and E. Allen (equal). Best sample of beeswax, not less than 1 lb.—E. Allpress, Fenstanton.

COTTAGERS ONLY.

Best six 1-lb. sections of honey.—1, Z. Hobbs, Little Stukeley; 2, E. Bull, Brampton; 3, E. Allpress. Best six 1-lb. bottles of run honey.—1, P. Dudley; 2, Z. Hobbs; 3, E. Bull.

IRISH BEE-KEEPERS' ASSOCIATION.

The Committee met on 6th inst. Present: Rev. Canon Sadleir (in the chair), Rev. P. Kavanagh, Mr. Read, and the Hon. Sec. Arrangements were made for the bee tent to be sent during the present month to the county Wicklow and to Parsonstown. It was resolved that a Conversazione should be held on the 28th inst., one of the days of the Horse Show.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 2nd page of Advertisements.)*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of July, 1889, amounted to 6765*l*. [From a return furnished by the Statistical Department H.M. Customs to E. H. Bellairs, Wingfield House, Christchurch.]

SOME REMARKS ON HONEY.

[2262.] Some years ago a paragraph went the round of the papers, entitled, 'Why do bees work in the dark?' And it was stated that the photographic action of light converts the honey from a clear yellow syrup into a solid mass; and, as the young brood can only take its food in the liquid form, the bees exclude the light from the hive to prevent the honey from becoming solid, and the cells from being thus sealed up.

Without insisting on the fact that the honey in old or second year's combs is generally solid, and in bad seasons is so even in the same year's comb, without any of the so-called action of light, I tested the above theory by direct experiment. Fresh combs taken at night were pressed through muslin into clean eight-ounced stoppered bottles, which when filled were tied over and one was wrapped up in several folds of thick paper. The two bottles were placed side by side on the window frame, and exposed to various temperatures, from seventy degrees and upwards to below freezing point, the direct rays of the sun frequently striking on the uncovered bottle. The honey in both bottles remained liquid during about eight months, after which it became solid, that is, candied, about the same time. This specimen was obtained from a farmer's wife during a visit to a village in Dorsetshire, not far from the sea. Another specimen from near Dunstable candied within a few weeks. Normandy honey also soon became solid, while specimens from Minorca and Lichtensteig (Rosenthal honey) remained permanently fluid.

An explanation of these apparent contradictions must be sought for in the constitution of the honey itself. Ordinary honey usually contains two kinds of sugar. One kind, identical with that of the grape, is named glucose, and also dextrōse, because when examined in a polarising apparatus it deflects a ray of light to the right. This kind of sugar crystallises, and gives to honey its semi-solid or candied texture. The other kind of sugar is that which gives sweetness to ordinary honey. It is named fruit sugar, also levulose (from *lævus*, left-handed), because it turns a ray of polarised light to the left. This kind of sugar does not crystallise, but retains its liquid transparent appearance, and hence is sometimes named vitreous or left-handed sugar.

Now when ordinary honey is kept for some time, whether exposed to the light or not, it thickens and becomes candied. If now it be stirred up with spirits of wine the crystallised sugar may be separated from the non-crystallisable syrup. Both kinds are of the same chemical composition, although so different in physical properties.

The reason, then, why some kinds of honey become candied and others remain fluid, is that one set contains both kinds of sugar, and others only one kind, and that is the non-crystallisable. Messrs. Fortnum & Mason supplied me with some Rosenthal honey that they had kept in store for three years, and I kept it as long, and yet it remained liquid, clear, and bright, and it resisted all my efforts to candy it.

When weighed portions of ordinary honey were exposed to the air, I found that they lost in weight in dry weather, and increased in weight in damp weather. Now ordinary honey contains about twenty-two per cent of water, thirty-eight of dextrose, thirty-six of levulose, while the remaining four per cent is made up of salts, wax, pollen, gluten, aromatic and colouring matters. The loss in weight is due to the evaporation of some of the water, the gain in weight must be referred to the action of a deliquescent salt, or one that absorbs moisture from the air.

On examining various kinds of honey I was surprised to find traces of common salt, lime, magnesia, potash, ammonia, and even iron, alumina, and some phosphates. Bees are fond of common salt, especially when they first come out in the spring, and it should be supplied to them in solution, in shallow vessels placed near the hives. The specimens from Dorsetshire contained traces of the salts found in sea water, and I have no doubt that the bees obtained them from the neighbouring sea. In inland parts the bees obtain salt from the drainings of dung-heaps, and from even more objectionable sources. Hence the necessity of supplying them with a saline drink such as a teaspoonful of salt to a pint of water.

By way of compensation, the most delicious honey owes its fragrance and taste to the thyme, rosemary or heather, on which the bees pasture.

As to the question, 'Why do bees work in the dark?' the answer must be given from the bees' point of view, when it must be remembered that the bees have not hitherto been instructed in the physical property of transparency. Hence they argue that the path by which light enters will also admit their enemies. The poor fly that knocks his head against a pane of glass will never understand why he cannot get through it; and the bee, with all his sagacity, will not feel secure in a transparent hive.—Chas. Tomlinson, F.R.S., F.C.S., *Highgate, N.* (*Hampstead and Highgate Express.*)

CARNIOLANS.—F. REED'S APIARY.

[2263.] *In re*, Are Carniolans good honey-gatherers? The above has been a vexed question for some time in your valuable paper, and no doubt has interested many bee-keepers who take an interest in improving our blacks; and I think no one will dispute the fact that queens once reared from reliable men who have studied bees for years are far superior to those imported and advertised as *pure*. I cannot say that my Carniolans have surpassed my other hybrid stocks, except that I can make one hive into three, they are so full of bees. I think I may suggest that to spread brood in stocks of this race is a mistake, at least I have every reason to believe so. It was thinking over these little matters that I made up my mind to visit an apiary of some 200 full stocks, besides numerous nuclei, at Portslade (three miles west of Brighton), owned by Mr. Frank Reed. My visit was quite unexpected, I being an entire stranger to him, but I found a ready welcome, and soon set to work examining the bees, all pure Carniolans (with the exception of a few mismated queens in nuclei, whose progeny were not marked up to Mr. R.'s standard quality), raised from two very particular strains, in the owner's possession for the last eight years; these bees show a beautiful grey or white band without the yellow, which unfortunately will crop up in those so-called pure Carniolans, imported. He showed me a stock only imported this year (the queen bought as selected) throwing the yellow bands. I was surprised to see the number of

small nuclei standing about, but Mr. R. informed me that he supplied several dealers, and these get the credit for his goods. As for honey, I never saw the like, which proves to me that in experienced hands Carniolans are the bees to gather honey in enormous quantities in a very few days. Mr. R. informing me that he had several swarms filled with honey, an eleven-frame hive, with comb-starters only, quite crowding the queen out of brood-nest in twelve days. It was the whitest of capping, and beautifully finished. It would pay to take up all the bees, even for the honey only, but his bees are too valuable stock to lose, and so he prefers to let most of them enjoy the greater part of their own stores. One thing I am perfectly convinced, that if any of your readers doubt the honey-gathering powers of the Carniolan race, Mr. R. would be pleased to see them and show his apiaries any Saturday, or any other day by appointment.

My visit was quite a treat. With Mr. R.'s experience of over twenty years, one can scarcely come away empty. His system of queen-rearing is very simple: preferring naturally built cells, he allows his selected stocks to swarm, viz., the queens of which are the purest of pure, or he takes the cells just before swarming, and these are removed into the nursery on the incubator style, and given to nuclei direct when hatched. Most of the hives are of simple construction, single walls, and frames $15\frac{1}{2}$ inch, with a thick top bar, which allow one a firm hold of the frame when holding with one hand, as he does, as he is single-handed in his apiary. He has practised direct introduction for years, but always takes the precaution that when removing an old queen, say two or three years old, to requeen with one a year old, as the bees accept her with better grace.

In looking around the Stonereigh Apiaries, during which time I overhauled close upon 100 stocks of Carniolans, and every one was in splendid condition, both as regards slabs of honey, brood, and pollen—a sight I shall not forget for many a day—I spent several hours and made some grand bargains in the shape of queens and nuclei, instead of sending the money over to my friends in fair Italy or Carniola. I felt as if it were a duty I owed to my fraternity to write and ask your kind favour in inserting this description of my holiday.—Herbert Harvey, *Boston Road, Hanwell, W., August* 9.

CARNIOLANS.

[2264.] I, too, fully endorse 'A. W. Leatham' and 'A Young Bee-keeper's' remarks as to Carniolans. They are without doubt the most prolific, and, if precautions are taken, I might say the best honey-gatherers. I find, like 'A Young Bee-keeper,' that swarming is to be prevented by giving plenty of room—say, three frames in advance. Then you will stop all swarming. But care must be taken or they will get the advance of the bee-keeper, for once they get the fever it is a 'case,' neither crates nor anything else will stop them. Do not use dummy-boards in small hives. I used them last year, and I put two frames at the back for the bees to clean out, but when I came to look at them they had taken possession of them as a part of their own home, so I pulled the dummy out and filled up with frames. What matters how many frames of bees in a hive? The more bees the more honey. I tell you what, Mr. Editor, we shall have to adopt the combination principle for the Carniolans,—hives to take thirty or forty frames. I have the pure race, and some crossed with the black drone. I should like to keep those all crossed with the black first. Those I have pure are a splendid specimen of the honey-bee. Our expert called on me the other day, and he wants me to send him one of the pure virgin queens, as they are such a fine strain. The only objection I have to Carniolans is that they swarm very awkwardly, two or three clusters on one bush, but that difficulty is soon put right. In conclusion, I say all honour to Mr. Frank Benton's Carniolan queens.—F. Hirst, *Smallheath, Birmingham.*

WASP'S NEST IN FRAME HIVE.

[2265.] There was really so little alteration in the nest last week that I did not think it worth while forwarding a report.

I have again taken measurements this week, and on comparing them with those reported in the *Bee Journal* of August 1st I find that the progress is small indeed, so small that I begin to think it will not get much larger. The measurements are, depth, 3 in., width, 3 in., entrance, $\frac{7}{24} \times \frac{5}{24}$ of an inch. The dome is $1\frac{17}{24}$ in. deep, and $3\frac{5}{24}$ in. in diameter.

Through the entrance I could count four distinct layers, while the combs seemed to be enclosed in another covering. There are only a few wasps flying about.—C. C. Moore, *Altrincham, August 12th.*

Echoes from the Hives.

Woodford, Essex.—I have been in a dilemma, until this season, since 1887, when I commenced bee-keeping, as to what kind of a locality for honey this would prove. The bee-flora consist of fruit-blossoms, horse-chestnut, hawthorn, blackberry, white clover, and limes, but there is no great extent of either, except blackberries, which grow in profusion in Epping Forest. I extracted about ten pounds from a swarm the first year, got none last, but this year I have exceeded all my expectations. I have taken two cwt. from four stocks, the best a stock of hybrid Ligurians yielding eighty-one pounds. It is curious how the honey has varied in colour. The first I took was about the beginning of June, and it was of good flavour and fairly light; the next was taken about three weeks later and was very dark, a sample of which I sent you and which you pronounced of good flavour. After this the rain came, and I suppose washed the honeydew off the leaves, and the next lot was much lighter, and continued to get so until the 5th of August; when I extracted for the last time this season, it was as pale as any honey I have ever seen. I have come to the conclusion that this is a fairly good district for bee-keeping, the worst drawback being the honeydew, which, I am afraid, will be prevalent every year, owing to the number of trees in the Forest that are liable to get infested with aphis. I noticed that there was no difference in the colour of honey from either black Ligurians or Carniolans, so I suppose that it is sought after equally by each variety.—J. J. S.

NOTICES TO CORRESPONDENTS & INQUIRERS.

W. F. C.—*Wholesale Price of Heather Honey.*—This will be ruled by the law of supply and demand. Genuine Scotch heather honey obtains a higher price than the English, and will fetch 1*s.* 6*d.* per lb.; that from your quarter from 1*s.* to 1*s.* 3*d.*, or thereabouts.

Bee-Kay.—You may safely take the tenth frame away, appropriate the honey, and bring the dummy up to the ninth frame. The great object is that, either by leaving the honey in the frames or by feeding, the bees have a sufficiency of food, (say) about twenty-five pounds of stores to tide them over to the spring.

H. Chapman.—1. *Extracting from Brood-nest.*—With care the honey could be extracted from the combs containing brood, but as your experience with bees is but slight, perhaps it would be desirable not to do so. The sufficiency of food for the winter should be from twenty-five to thirty pounds, and the food given should be in proportion to that amount. 2. *Transferring.*—This may be done now, or it can be left to the coming spring. 3. *Crooked Combs.*—To rectify crooked combs remove the frames *en bloc*, brush off the bees, and straighten the combs; if any frames are irretrievably damaged, supply new ones or foundation.

Lascelles Carr.—You are to be congratulated on the amount of honey gathered by your bees during the past

season. It is to be regretted that the discovery that the colony was queenless was not found out sooner. It is now too late to raise queens: so unless you have a surplus one means should at once be taken to provide one. No time should be lost in making this arrangement.

J. S.—All information respecting certificates and examinations can be had by applying to Mr. Huckle, King's Langley, Herts. We have forwarded your letter.

R. Hisslewood.—*Commencing Bee-keeping.*—By following the advice given in these pages any intelligent person can obtain a sound knowledge as to the best methods of keeping bees on modern or otherwise profitable principle. We cannot advise as to any special makers of bee-hives, but our advertisement columns will give you all the information necessary. We should not pay less than 15*s.* for a hive and rack of sections, for which price any of the makers advertising in this *Journal* would supply you with a good, sound article.

M. Humfrey.—1. *Apicultural Shows.*—The Secretary of the Hants and Isle of Wight Bee-keepers' Association will give you every information as to shows held in Hampshire; the address is as follows:—E. H. Bellairs, Esq., Wingfield, Christchurch, Hants.—2. *Dead Bees in Bell Glass.*—It is not from want of ventilation. We should suppose—you do not give us the information—that you have a piece of excluder zinc over the hole on top of skep, if so, the cause is that it, the zinc, is put on wrong side up. Excluder zinc has a burr on one side; if this is placed away from the entrance the bees are unable to drag their dead through the holes for reason of their articulations catching in the burr. —3. *Queenless Stock.*—No doubt the colony is queenless.—4. *Storing Combs.*—The unsealed honey must be extracted or it will turn sour, and frequently cause dysentery when given to the bees. Pollen need not be taken out; in fact it cannot be removed at this time of year. The bees will clear it out next spring.

W. H. Ley.—*Age of Queen.*—The age of a queen cannot be told at sight; the appearances noted by expert give one a very good idea, that is all. Young queens that have had encounters with others or with bees frequently get ragged wings, when, of course, such an appearance would not apply.

Trucksford.—1. *Carbolic Cloth.*—There are a great number of different strengths of carbolic acid sold; perhaps yours was very weak. We always use carbolic acid in our manipulations. We have not handled a smoker for four or five years, and yet have never seen the bees ignore its subjugating power. In the article 'Removing Supers' the acid used was that which Mr. Webster uses in his fumigator.—2. *Removing Rack of Sections.*—You did very wrong in leaving a rack of full sections standing near the bees for half an hour; such a course would cause robbing in any apiary as well as a loss of the sections. You should have taken it indoors, bees and all, and have allowed them to fly to the window, which could have been opened every now and then to let the bees out.—3. *Bees carrying Honey from out of Super.*—When the rack was nearly full there was plenty of honey coming in to feed the larvæ with; no doubt the queen was breeding freely; but this honey flow stopped, as it has now all over the southern part of England, when the bees used that stored to feed the larvæ, or stored it in the cells vacated by the hatching larvæ, a thing always done by them at this season.

J. Gilpin.—*Sugar.*—The sugar is quite suitable for making syrup for feeding bees, and the price is a fair one for buying by the pound, and allows the dealer a small profit. There is a little downward tendency in the price of sugar.

T. H.—The different colour of the honeys has been caused by the bees gathering the honey from different sources. The black bees were evidently content with the honey found in the neighbourhood of their hives; while the Ligurians had gone further afield and collected theirs from a variety of flowers. Possibly privet and honeydew, hence its darker colour.

E. Renwood.—Reply in next issue.

S. Lawton.—*Honey.*—The bottle A is decidedly the best, it is of good consistency; that in bottle B is thin and scarcely ripe enough. Both are of good flavour, and had they been in bottles of same diameter, there would have been no difference in colour.

Anxious One.—*Chilled or Foul Brood.*—There being a doubt in your mind whether your bees are afflicted with chilled or foul brood, we should be pleased to have a sample piece of comb for examination. If chilled brood is the trouble, they may remain where they are till the honey flow is over; if foul brood, the sooner prompt measures are taken the better.

G. Swain.—Please consult our advertisement columns for your requirements.

We omitted in our last to state that the communication 'Mr. Manum in his Apiary with his Men,' was extracted from *American Gleanings.*

Mrs. Handley, Settra Park, Penrith, Cumberland, would be obliged by some bee-keeper in her neighbourhood assisting her in driving some skeps.

A Correction.—Borgue Honey.—Referring to last week's issue of *B.B.J.*, page 342, the Chairman, Mr. Grimshaw, of B.B.K.A. meeting, makes a statement regarding Borgue honey, which, if allowed to pass unnoticed, would be misleading to your readers. He says, 'The renowned Borgue honey, almost exclusively kept for the Royal table, was the production of heather and other herbs.' This is wrong. There is no heather grown in Borgue parish, consequently its famous honey is gathered from another source. Perhaps he is not aware that all the honey gathered in Borgue district can be taken from the combs with the X-Tractor.—W. McNally.

Remarkable Adventure at Dipton.—A party of bee-keepers had a somewhat remarkable adventure on Thursday morning last. Mr. George Murray, an assistant master at the Colliery Board Schools, Dipton, accompanied by other gentlemen, was making preparations to carry some half-dozen hives of bees to the moors. During the process of packing them in a cart the bottom accidentally fell off one of the hives, and the bees came out and ferociously attacked Messrs. Murray, Elliott, Thornton, and others. The insects also clung to the horse. The animal bolted away, and the rest of the hives being disturbed by the jolting and jostling, hundreds of other bees found their way out, surrounded the occupants of the conveyance, and attacked the horse. The insects likewise fastened themselves upon a batch of school-children. Eventually Mr. Murray and one of his companions (Mr. Elliott) were left lying upon the ground in an exhausted and semi-unconscious condition, while the horse had not galloped much further before it fell to the ground. It expired the same night from the effects of the stings. Mr. Murray was confined to his bed for some time, but on Saturday night he was found to be much better. The rest appear to be very little the worse for their escapade. Most of the bees were recaptured.

SHOWS TO COME.

Bees, Hives, Honey, etc.

Aug. 17.—Crystal Palace. Secretary, Mr. Broomhall, 1 Norfolk Street, Strand.

August 20th and 21st.—Shropshire Bee-keepers' Association at Shrewsbury. Sec., W. G. Preece, Shrewsbury.

Notts Association.

Sept. 5.—Greasley and Selston.

Hon. Sec., A. G. Pugh, *Mona Street, Beeston.*

Special Prepaid Advertisements.

Exchange Column.—Sales of Honey and Second-hand Goods.—Intended to aid Bee-keepers in the disposal of Bee produce and Appliances for which they have no further use. Terms: Twelve words and under, Fourpence; for every additional Three words, One Penny extra.

Situations, Publications, Bee Plants, &c.—Twenty words and under, One Shilling; for every additional Three words, One Penny.

HOOKER'S GUIDE TO SUCCESSFUL BEE-KEEPING. Price 9*d.*
JOHN HUCKLE, Kings Langley, Herts.

BEE-KEEPING, Plain and Practical: How to Make it Pay. By A. RUSBRIDGE, 1*s.* 6*d.*, post free, 1*s.* 8*d.* Address J. HUCKLE, Kings Langley, Herts. A 1253

WANTED.—Copies of *British Bee Journal* for January 7th, 1886, and Nov. 1873. Full price given.

WANTED.—Copies of the first Nos. of *The British Bee-keepers' Adviser.* Full price given.
JOHN HUCKLE, Kings Langley, Herts.

PURE CARNIOLANS (Autumn Prices). Guaranteed healthy Six-frame Stocks, 18*s.* 6*d.* Hive-frame Nuclei, 12*s.* A few Carniolan Hybrid Queens, 3*s.* 6*d.* each. All Queens reared this Season. Address FRANK REED, Stonereigh Apiaries, Portslade, Brighton. (220)

PURE CARNIOLANS, guaranteed healthy, 3 Frame Nuclei, 15*s.*; 6 Frame Stocks, 25*s.*, headed with Young Prolific Queens. Address FRANK REED, The Stonereigh Apiaries, Portslade, Brighton. E 46

HONEY SECTIONS of best quality purchased for Cash. Address T. SMITH & Co., Cambridge Street, W. E 86

STOCKS.—Several for Sale; also gross Tie-over Bottles, price 10*s.* 6*d.* Address APIARIST, Wrotham Villa, Broadstairs. E 100

FOR SALE.—A well-stocked Observatory Hive (formerly the property of Rev. H. R. Peel), including Six Frames and a Bar-frame Travelling Hive for Wintering the Bees. In capital condition, price £3 3*s.* Address W. STURDY, Thornton Hall, Stony Stratford.

WANTED.—A few lots of Condemned Bees, of not less than 3 lbs. each, with Queen. Packages returnable. Apply, stating price, JAMES FRANCIS, 2 Dallington Road, Northampton. (219)

DRIVEN BEES, with warranted Queens. Wanted two or three good lots shortly. Address J. F. NEWLAND, Wandsworth Common. F 3

EXCHANGE.—A Home-bred purely-fertilised 1889 Carniolan Queen. Wanted Ligurian, Home-bred, 1889, purely mated. Address J. SCARLETT, Junr., Taunton.

WANTED, first quality Section Honeycomb (1-lb.) Also New Run Honey in bulk. Any quantity, Terms cash. Address Mr. E. HURST, Bexhill, Sussex.

FOR SALE, on the place, strong Stocks of Bees in Skeps. Price 10*s.* each. Address FREDK. T. FLETCHER, The Maples, Ottershaw, Chertsey, Surrey. F 5

BEES FOR SALE.—Two strong healthy Stocks, seven Frames, 21*s.* each. Address Major COOKSON, Gargrave, Yorks. F 6

FOR SALE.—Thirteen Straw Supers of splendid White Clover Honeycomb, from 10 to 14 lbs. each. For price, address JAMES STEPHENSON, Straw Skep Manufacturer, Beck Isle, Pickering, Yorks. F 7

DRIVEN BEES for Sale, 1*s.* per lb. Young Queens, 1889, 2*s.* each. Address S. HANCOX, Wytham Mill, near Oxford. F 8

STANDARD BARS, with Metal Ends, of Comb, Brood, and English Bees, 2*s.* 6*d.* each. Cases, 1*s.* 6*d.*, returnable. Carriage paid. Queens, 1*s.* 6*d.* extra. Two Young Fertile Italian Queens, 4*s.* 6*d.* each, with Italian, Bars as above, 2*s.* 9*d.* extra. Driven Bees in September, 1*s.* 6*d.* per lb., with Queen. Queens, 1*s.* 3*d.* Address HOLDER, Wimborne. F 9

BEES FOR SALE.—Two strong Stocks in Skeps, 42*s.* One Stock in Cheshire's Bar-frame Hive, 35*s.* Two Section Crates, 6*s.* What offers for lot? Address TOPHANES, High Street, Edgware. F 10

FOR SALE.—Bee House, 6 ft. by 8 ft., with five strong Stocks, three empty Hives, with Combs, Drawers, Cupboards, and Shelves, complete, £9. Cowan Hive (strong) 30 Frames, 30*s.* Combination and others from £1; very strong. Section Crates, holding Lee's Section Tin Dividers, 2*s.* each. Simmins' Amateur Feeders, 2*s.* 6*d.* each. 600 Sections, 20 empty Hives, Smokers, Extractors, cheap. Reason selling, going abroad. Apply W. BODGER, Burnham, Somerset. F 11

OBSERVATORY HIVE, 8 Frames and a Super; Bees very strong; Hive full of Honey; £2. Address F. BRAMWELL, 73 Church Street, Preston. F 12

HONEY FOR SALE.—In Sections, in Bottle, and in bulk. Similar to my Honey which took two First Prizes at Yorkshire Show. Apply C. ATKINSON, Tockwith, York. F 13

FOR SALE.—Two Bar-framed Hives, well filled with good Honey, 8 and 10 Frames, and 4 Straw Hives. Should say there are 150 lbs. or more of Honey in all. Having more than I want, will dispose of the lot for £6, Bees, Honey, and Hives. Address G. ELSTON, Sluices, Shalford, near Guildford, Surrey. F 14

HAVING finished Extracting, I have several nice fresh Combs to spare in Standard Frames with Metal Ends, suitable for making Stocks of Condemned Bees, 1*s.* each. Address CHILDE, Semington, Trowbridge. F 15

HONEY FOR SALE.—In 1-lb. Sections, in Bottles, and in Bulk. Apply to THOMAS CHARLES, Caerswall, Much Marcle, Gloucester. F 16

FIRST PRIZE HONEY, Packed Free. Sections, 10*s.* doz.; 10-lb. Tins, 8*s.* 6*d.* Address HY. BARLOW, Junr., Ongar, Essex.

WANTED.—Healthy Bees by weight. No Hives. Address W. J. SMITH, Mortomley, Chapeltown, Sheffield.

DRIVEN BEES for Sale, 1*s.* 3*d.* per lb. Stamp for reply. Address J. DAVIES, Bee-keeper, Newport, Salop.

BEESWAX:

Its Economical Uses and Conversion into Money.

BY J. DENNLER,

AUTHOR OF 'HONEY AS FOOD,' 'HONEY AND ITS USES,' ETC.

Translated from the German, and Edited by

THOS. W. COWAN,

EDITOR OF THE 'BRITISH BEE JOURNAL.'

ILLUSTRATED, PRICE THREEPENCE.

'BEE JOURNAL' OFFICE,
KINGS LANGLEY, HERTS; AND 17 KING WILLIAM STREET, STRAND, W.C.

THE BRITISH BEE JOURNAL

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Editorial, Notices, &c.

EMINENT BEE-KEEPERS.

No. 10.—WILLIAM RAITT, BLAIRGOWRIE.

At the commencement of the present year bee-keepers were considerably startled by the announcement of the sudden death of one of their number who by voice, pen, and hand, had contributed, in no slight degree, to advance their special industry. On the evening preceding the day of his death Mr. W. Raitt, Beecroft, Blairgowrie, had attended a very successful evangelistic meeting at the Mission Hall, Blairgowrie. He reached his home in his usual health, and seemed specially happy. About six o'clock next morning he was found to be breathing heavily; and soon after the hasty summons of the members of his household, it was evident that he was dying, and he expired in a few minutes. The cause of death had been the stoppage of the action of the heart. Thus passed away, at the comparatively early age of forty-nine, in the prime of his life, and in the fulness of his strength, one who was held in high esteem by all who knew him, not only as an 'eminent bee-keeper,' but also as a devoted Christian worker. In this slight sketch we have to deal with him only in the former capacity.

WILLIAM RAITT.

William Raitt was born at Newport, Fifeshire, on the 20th of June, 1839. His father, who was a sailor, died in the hospital at Leith, having received a fatal injury from the effects of a fall from the masthead. His widow with four children—two boys and two girls—was left in very lowly circumstances. At the time of the death of his father, the subject of our sketch, William, who was the eldest child, was only six years of age. His mother, by dint of patient devotion and self-denying labour, gave herself to the task of rearing the family; and she so far succeeded that each of the children received a fair education; and William, who displayed a special aptitude for scholarship, became a pupil-teacher in the school in which he was educated. He gained 'the position of Queen's Scholar or Prizeman at this school, and was sent to the Edinburgh Training College, and after a very distinguished career there, was elected an undergraduate of London University after a very trying examination.'* After passing through the usual curriculum of study he adopted school teaching as a profession. The first school in which he taught was Johnshaven, afterwards at Hillhead near Glasgow, then at Nairn, and lastly at Liff by Dundee. In his speech as a candidate for the Blairgowrie School Board in 1879, he said, 'he had taught for twenty-six years in elementary schools, and had some experience in the higher education, as he happened to be an undergraduate, with honours, of London University.'

Mr. Raitt having passed many years as a schoolmaster, commenced bee-keeping in the neighbourhood of Nairn when he was about thirty years of age. He was always fond of natural history, and took a prominent position in the Naturalists' Field Club of Nairn. Walking one day through the garden of a friend and former fellow-student, who was the possessor of two skeps, he became interested in watching the labours of the little bees, and at once realised the enjoyment which such a pursuit would furnish; and he resolved to be a bee-keeper. He at once noted that it would be desirable to locate his bees in the open country, so he made choice of a spot about two miles from Nairn. His bees prospered, he gradually grew more and more attached to their study, and from that time he was never without some colonies of bees. When he removed to Liff by Dundee, he extended the number of his colonies, and studied with much earnestness the various methods of modern bee-keeping. He took a great interest in bee exhibitions, and lost no opportunity of teaching cottagers and artisans the advantages to be derived from bar-frame hives.

When we note the high position to which Mr. Raitt afterwards attained among bee-keepers we think it desirable to record, for the encouragement of young

* *Record*, p. 44.

bee-keepers, that the first communication we meet with from his pen in the *B. B. Journal* (Vol. iii. p. 231) was respecting some appearance in his hives which indicated foul brood, and requesting the Editor to give a few plain directions for detecting foul brood in its incipient stage, and inquiring what remedy should be employed to cure it.

In the month of May, 1877, Mr. Raitt had become dissatisfied with the imperfect means then in use for obtaining wax-sheets, and to him we would assign the honour of being the first to procure from America a foundation machine. He says, 'I have just sent off to America for a comb-foundation machine, probably the first on this side the Atlantic; and as I am fully convinced of the right stuff, I hope to be able to report it a success before the season is over.' This machine having been received and tested, he reports it as 'a marvellous production,' and as a great success. This was the commencement of a new industry with Mr. Raitt. His foundation was in great favour, and his business has from year to year increased so that he was able to report in the number of the *Record* preceding his decease that he had *four tons* of wax in hand for the supply of bee-keepers during the coming season. Mr. Raitt was an excellent judge of the qualities of wax.

In 1876, the East of Scotland Bee-keepers' Society was founded, with Mr. Raitt as secretary. He threw his accustomed energy into the work of this society, reading papers at its various meetings, conducting shows, and continually giving lectures on bee-keeping in the neighbourhood of Dundee. We note that at the show of September, 1876, Mr. Raitt took the first prize for the largest and best harvest of super honey the produce of one hive, the exhibit weighing 103½ lbs., and being 'pure in colour, regular in build, and as dry and well sealed as could be. This exhibit was sold for upwards of 8*l*.'

Many of Mr. Raitt's communications will be found in the earlier volumes of the *B. B. Journal*. In 1882 he published in the *Weekly News*, of Dundee, a series of papers embracing the whole field of bee-keeping, and which we have ever considered worthy of a more permanent record than is to be found in the fugacious columns of a weekly newspaper.

In January, 1885, Mr. Jackson transferred the editorship of the *Bee-keepers' Record* to Mr. W. Broughton Carr, of Higher Bebington, Cheshire, and to Mr. Wm. Raitt, 'who has long been recognised as one of the leading apiarists of the day, and his writings on bees are highly valued both here and in America;' and by these co-editors the *Record* continued to be conducted in the most exemplary manner.

Mr. Raitt, besides his work as a bee-keeper, has devoted much time and attention to the cultivation of strawberries, and his letters on the culture of that fruit which appeared in the *Journal of Horticulture* showed how fully his mind was imbued with the knowledge of their requirements. In this pursuit Mr. Raitt was specially skilful and successful, the soil of Blairgowrie being favourable to the growth of strawberries.

Mr. Raitt was for some time editor of the Bee Department of the *Journal of Horticulture*.

At the Canadian Exhibition, in September, 1885, Mr. Raitt, as many of our readers may remember, was present at the banquet given in honour of the Canadian visitors, and took a part in the discussion that was held at the evening Conversazione. He afterwards paid visits to the principal bee-keepers in England, who were all much gratified by having this opportunity of forming an acquaintance with one who had taken such a foremost part in the cultivation of the honey-bee.

Mr. Raitt was twice married. At the time of his death he had been a widower for over fourteen years. He left a family of seven children, six boys and one daughter.

MELROSE APIARIAN EXHIBITION.

This Exhibition, which has now been opened since the beginning of July, has so far been a success in showing to the public the most advanced methods of bee-culture. The town of Melrose is specially adapted for such an exhibition, from the fact that many visitors go there in summer; and the district is largely composed of the intelligent working class, who eke out their livings by keeping bees, or some other rural industry. The Annual Show of the Highland and Agricultural Society being held there this year, we postponed our visit, intending to see the Highland Show and Bee Exhibition at the same time.

The site of the latter is all that could be desired, very convenient to the town and railway station. A description of the building was lately given in this *Journal*; it is a two-gabled structure of wood and iron, about 50 × 30 feet, fitted with staging all round for the different exhibits, and having a dry, wooden floor. Once inside the building, the visitor sees one of the most complete and instructive exhibitions connected with bee-keeping. Though not large everything has been selected with skill and good judgment. Hung round the walls is a fine collection of dried honey-producing plants, a very comprehensive series of diagrams illustrating the natural history and physical development of the honey-bee. Some very pretty water-colour drawings of the strawberry, apple, and other fruits, with particulars, showing the relation of bees to flowers and fruit. These are executed very skilfully by Mrs. Gibson Carmichael, of Chiefswood. Observatory hives, stocked with the different races of of bees, and the usual collections of hives and appliances, are on view from different makers. Two wasps' nests, or *bykes*, stocked with their inmates, and working, attract considerable notice.

Among the special features of this exhibition are specimens of hives and other appliances used on the Continent, showing how bees are managed there. Although the greater part of these would not suit the Scotch bee-keeper, nevertheless some useful hints on the working of straw with hives might be here gathered. A collection of goods and confections made from honey, a miniature model apiary, and a glass case containing the various enemies of the honey-bee, all brought together at some considerable expense, tend to make this exhibition one of the most complete ever held in Scotland.

Outside of the building is the driving tent, where, on certain days, practical demonstrations of bee management are given by an expert, and during the show week Mr. J. H. Howard, Holme, Peterborough, lectured at suitable times to interested and attentive gatherings. There is also alongside the driving tent shown an apiary on wheels, fitted to hold twenty-six hives, but unfortunately for want of time the bees had not been put into it. This being the first apiary of its kind made in this country, perhaps the owner will, at some future date, kindly give his experience of it through the *Journal*.

To show the interest taken in this exhibition we may mention that over 200 visitors have attended on an afternoon, and as it will be kept open till the end of August all interested in bees will do well to pay it a visit. Considering the expenses connected in erecting such a building, and bringing forward the different exhibits, it has not been a success financially; but the originator, Mr. Carmichael, is, however, satisfied, seeing that the working classes have appreciated his kindness, and there is no doubt many new hands will start bee-keeping through visiting this exhibition. Scotch bee-keeping would be greatly advanced had they more scientific bee-masters like Mr. Carmichael, whose zeal for the hobby encouraged him to start this venture solely for the good of the working classes.

JULY JOTTINGS, &c.

By Allen Pringle.

(*Continued from page* 355.)

New Blood.—No matter how good your queens, or pure the breed, introduce new blood from time to time. That inexorable law of heredity, which punishes in-and-in breeding in the animal world, may possibly give the apiarist a wide latitude, as some contend, but it doubtless has its limits, and common sense, as well as physiology, would suggest the periodical infusion of new blood. But the new blood must be good blood, free from disease. Deal in queens only with reliable men. A good and cheap way to introduce a change into the apiary is for first apiarists wide apart to exchange virgin queens; you send me a dozen of yours, and I send you a dozen of mine by mail, or you come and see me and bring a dozen and take away a dozen, or I go to you, &c. These can mate with the home drones, and the result will be good, cheaply attained.

Contraction.—Mr. Simmins, in replying to my criticism of his 'Contraction' method (2077), thinks I misunderstood or misrepresented his position, and that I could not 'possibly' have understood him to intend or convey the position criticised. Now, I certainly did so understand him, and a reference to my criticism (page 212, vol. xvii) will disclose the fact to the reader that for every point criticised I quoted *verbatim* from Mr. Simmins language which will fairly bear no other construction than that I put upon it. If he said one thing and meant another I am sorry for that, and if I did his real meaning any injustice I am still more sorry. But I never look beyond a man's words or between his lines for his meaning. When he leaves it there instead of where it ought to be on the surface of his words, he has only himself to blame when he gets handled.

Zinc.—This is another bone of contention, and I can see no other way than for those who like it to use it, and for those who do not like it not to use it. Meanwhile, let me say to Friend Simmins that he is mistaken when he says that 'Mr. Pringle cannot work without excluder zinc.' He cannot find that notion 'in the bond,' either in the lines or between them (page 213). Before the said Mr. Pringle ever heard of excluder zinc he produced tons and tons of honey and could do so still, but prefers now to lessen the labour of its production, while at the same time increasing its quantity, by using the modern improvement in the shape of excluder zinc. I said I hardly knew what a cell of pollen in a section looked like. Mr. S. 'fails to see what that has to do with it in his (my) case, as pollen can be carried through it by the bees.' True, my friend; but you ought to know that the workers are not apt to carry pollen out of the brood-nest, and as the zinc prevents her highness from converting the section super into a nursery, the workers stick to their mother with their baby food.

On page 256 (2098) a correspondent, Mr. Seamark, details 'some disadvantages and dangers of excluder zinc,' and declares he 'shall never more believe in the excluder zinc!' That is rash; and the cause of it all would appear to be that Mr. Seamark's queens got through the zinc, and he 'has seen this year brood in sections, nearly all full, waiting for swarming.' After seeing all this, Mr. S. goes straightway and condemns the zinc, and 'shall never more believe in it.' That shows that once he did believe in it, and he may after all believe in it again. Were I a betting bee-keeper, I would have no hesitation in wagering ten to one that in this case one of two things is true—either Mr. S.'s queens are too small or his zinc is too large, one of the two. This is not meant for a joke, for if the zinc is properly made with apertures right size it will exclude ninety-nine per cent of all average queens fit for use. Little 'scrubs' of queens which no bee-keeper ought to keep will doubtless pass through without trouble, but a good-sized queen never. But one queen, during all my experience with the zinc, has to my knowledge, passed through it, and she was a runty specimen which I promptly weeded out.—*Selby, Ontario, July 30th*, 1889.

ASSOCIATIONS.

NOTTS BEE-KEEPERS' ASSOCIATION.

This useful and thriving society, which has for its object the improvement of bee-culture, held its fifth annual exhibition in connexion with the local flower show at Beeston on Monday, August 5th. Some time ago the Society experienced one of those reverses of fortune which, unfortunately, are too often met with in the history of all institutions of a similar character; but since Mr. A. G. Pugh, of Beeston, has occupied the post of secretary, through his energetic exertions things have taken a turn for the better, and the Society is rapidly rising to the position which it should hold in the county. The new members up to date this year number nearly seventy, and in consequence of this satisfactory increase the Association has been enabled to offer its members much greater advantages than it had done in the past. The Society has now a membership of 112. Local shows have been held this year in connexion with floral exhibitions at Sutton-in-Ashfield, Southwell, and Farnsfield, while others will be held on the occasion of the Woodborough and Epperstone Horticultural Society's Show on the 15th inst., and the Greasley, Selston, and Eastwood Show on the 5th of September. Prizes were offered yesterday for sections of comb honey, extracted honey, collections of bees, exhibits of beeswax, collections of hives and appliances, and bee-driving. There were twenty-four exhibitors in the extracted honey class, and the collection was voted the best seen in the county this year, and exceeded the show held in connexion with the Royal Agricultural Society in Wollaton Park. There were twelve exhibitors of sections of comb honey, and ten of beeswax, and nine observatory hives were shown. For the driving competition the competitors were also numerous, and the result was not known until late in the evening. Mr. J. M. Hooker, St. John's, London, a late member of the committee of the British Bee-keepers' Association, with which the Notts Association is affiliated, was judge. Results:—

Class 1.—Twelve 1-lb. sections of comb honey.—1. M. Lindley, Eastwood; 2. W. Measures, Upton, Southwell; 3. J. Harvey, Skegby. Highly commended, Mrs. Wootton, Widmerpool.

Class 2.—Twelve 1-lb. bottles of run or extracted honey—1. T. Rawson, Selston; 2. J. Wilson, Langford Hall, Newark; 3. B. Rawson, Selston. Highly commended, Lord St. Vincent, Norton Disney; Mrs. Burnley, Blidworth. Commended, R. Turner & Son, Radcliffe.

Class 4.—Exhibit of bees of any race, to be exhibited living with their queen in an observatory hive.—1. G. Pugh, Beeston; 2. J. W. Rawson, Selston; 3. T. Rawson.

Class 5.—Exhibit of beeswax.—1. B. Rawson; 2. A. Simpson, Mansfield Woodhouse; 3. Lord St. Vincent.

Special Class (open to all England).—Collection of hives and appliances.—1. L. Turner & Son; 2. R. W. Pett, Greyfriar Gate, Nottingham.

Class 6.—Bee-driving.—1. A. G. Pugh, Beeston; 2. G. Hayes, Beeston.

CO-OPERATIVE FESTIVAL.

The fourth National Co-operative Flower Show was held simultaneously with the second Great National Co-operative Festival on Saturday last, the 17th of August, at the Crystal Palace. There was a very large number of exhibitors from all parts of England, and there was a very fine collection of fruits, flowers, vegetables, and honey.

Space will not admit of our giving any notice of exhibits except those of apiculturists exhibiting honey in the comb, run or extracted honey, and bees-wax.

The British Bee-keepers' Association gave special prizes of silver and bronze medals for the exhibits most tastefully arranged in the class for collection of comb and extracted honey, staged and arranged as a trophy on a space 6 feet by 2 feet 6 inches, Class 240. In addition to which, prizes of 50*s.*, first prize, 30*s.* second prize, and 20*s.* third prize, were given. Mr. Baldwin obtained the first prize, Mr. Cudd the second, and Mr. Dance the third.

Class 241. For the best twelve 1-lb. sections of comb honey.—The first prize of 20*s.* was awarded to Mr. P. Hills, jun., of Great Baddow, Essex; the second, of 15*s.*, to Mr. Thomas Duncomb, Horsham, Sussex; the third prize, of 10*s.*, to Mr. S. Bailey, of Horsham; the fourth to Mr. Baldwin, Bromley; the fifth to Mr. H. Kerridge, Ipswich. The exhibits of Miss A. M. Runcieman, Chelmsford, Mr. Allen Potter, Braintree, and Mr. Geo. Cole, also of Braintree, Essex, were highly commended.

Class 242. For twelve 1-lb. glass jars of run or extracted honey:—First prize, of 20*s*., to Mr. Wm. Nott; second, of 15*s.*, to Mr. Wm. Newman, jun., Great Baddow; third, of 7*s.* 6*d.*, to Mr. A. Jones, Gloucester; fourth, of 5*s.*, to Mr. Prentis, Grays, Essex; fifth, of 2*s.* 6*d.*, to Mr. P. Hills, jun.

Class 243. For British wax from exhibitors' own hives.—First, of 10*s.*, to Mr. Thomas Dance; second, of 7*s.* 6*d.*, to ———; third, of 5*s.*, to Mr. H. Kerridge.

Class 244. Honey in applied forms.—First, 10*s.*, to Mr. H. Kerridge, for mead; second, of 7*s.* 6*d.*, to Mr. Dance, of Halsted, Essex; third, of 5*s.*, to Mr. H. Kerridge, for vinegar made from honey. The judges in this section of the show, appointed by the British Bee-keepers' Association, were Mr. John M. Hooker and Mr. Alfred Neighbour. There were a large number of entries in Classes 241 and 242, the counties of Berkshire, Bedfordshire, Gloucestershire, Essex, Kent, Norfolk, Surrey, Suffolk, Sussex, being well represented.

The extracted honey was exceedingly good and bright in appearance, and the judges had a difficult task in making their awards. Honey of this season is equal to any that we have previously seen; there is good evidence of the useful teaching of the Bee-keepers' Associations in the clean appearance and marketable form in which it is presented.

The comb honey in sections was fairly good, taken altogether. We have seen them much better filled, so far as popholes go, but this can in a great measure be remedied by using foundation of a proper size. The exhibition was a marked improvement upon that of last year, although but few of our largest honey producers and exhibitors put in an appearance.

YORKSHIRE AGRICULTURAL SOCIETY.

The annual show of this Society was held at Hull on the 6th, 7th, and 8th inst., in moderately fair weather, and the attendance was above the average. It is unnecessary to draw attention to the importance of the Yorkshire Society, which has a history quite as ancient as the Royal Agricultural Society itself, and the annual show is only second to the Royal throughout the entire kingdom in the number of the exhibits of first interest to agriculturalists, and in the attendance of visitors.

As regards bee-keeping the Yorkshire bee-keepers cannot lay claim to the same distinction, but an excellent exhibition of hives, appliances, and honey, was made, particular attention being drawn to the tasteful display given by a branch of the Y. B. K. A.—the Hull and East Riding district B. K. A., the whole of which (honey weighing over a ton) was readily disposed of at 1*s.* per lb. The judge was the Rev. J. L. Seager, whose adjudications, it goes without saying, were made with characteristic impartiality, and gave entire satisfaction to the respective exhibitors.

During the first day of the show four lectures (with examples of hive manipulation) were given by the county secretary, Mr. Grimshaw, particular stress being laid upon the inadvisability of driving bees at such shows, exhibitions of this kind often attracting only those curious to see the risk of the operator being stung, instead of drawing together people desirous of learning something of the modern methods of successful bee-keeping. Allusion was made, somewhat against the modern canons, we admit, to the almost certainty of the bee-keeper having from time to time to take his share of stings in spite of every precaution, bee-keepers being advised to wear veils when manipulating, notwithstanding the absence of such protection from the lecturer. In consequence of domestic illness the secretary did not attend on the two following days, the duties in the tent being kindly performed most efficiently by Mr. W. Dixon, the county expert, and Mr. A. C. Jemieson, the secretary of the Ebor Branch B. K. A.

On the last day of the show the bee department was graced by the presence of our queen-bee the Baroness Burdett Coutts, and this visit was quite as acceptable to Yorkshire bee-keepers as was that of Her Gracious Majesty herself at the recent Royal show. The Baroness examined minutely the various items exhibited, and after expressing great satisfaction at what she saw left a considerable order for honey with the exhibitor who accompanied her, thus, as ever, requiting and encouraging everyone with whom she comes into contact.

The honey was of such even and excellent quality that the judge had a most difficult task in deciding on the grades of superiority. Never, perhaps, was clearer, purer, more delicately flavoured honey placed before the public, the only pity was that more had not been sent, for all would surely have been sold, and by this means bee-keeping would get a timely assisting fillip.

Nearly all the exhibits of appliances were made by local hive-manufacturers, but in point of merit they would have held their own at any show.

In the honey classes, the Rev. R. M. Lamb, Burton Pidsea, near Hull, gets a first with the best section honey we have seen this season, for completeness of filling, straightness, regular capping, and colour of sections. In extracted honey, Mr. C. Atkinson, of Tockwith, near York, a well-known successful honey-producer (*vide* Royal Show last year); comes first with a very pale straw-colonred sample of extremely delicate recherché flavour. Messrs. F. Boyes, W. Dixon, J. Yorke, R. J. Cheesman, divide the remaining honours, with the exception of Mr. J. D. McNally, of whom special mention should be made. He takes the first for granulated, second for heather, and third for twelve sections. In hives, &c., W. Dixon, 5 Beckett Street, Leeds, takes five first and two second class prizes. Mr. A. C. Jemeison, Colliergate, York, one first and three seconds. Mr. Chester, of Goole, gets third prize for general purposes, hive price unlimited. Dr. Wray, with his mel-pel, takes first for extractor for sections.

TAVISTOCK COTTAGE GARDEN SOCIETY.

The forty-second annual exhibition of this Society was held in the new market, Tavistock, on Wednesday, August 14th. Prizes for honey were as follows:—

Open to the district.—For six sections of comb honey, not exceeding 2 lbs. each. 1st prize, S. Jenkins, Horrabridge, 10*s.*; 2nd, T. Angove, Woodtown, 5*s.*

Open to cottagers.—For the best super or nadir of honey. 1st prize, J. S. Jenkins, Horrabridge, 10*s.*; 2nd, Clarke Grenoven, 5*s.* Mr. J. S. Jenkins also exhibited his observatory hive, which was a great attraction to the visitors.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (*see 2nd page of Advertisements.*)

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

ACID FOOD AS A PREVENTIVE AND CURE FOR FOUL BROOD.

[2266.] Thank goodness I am not offering your readers a new discovery, else I should hesitate in fear of the thunderbolts which would be hurled at my head; alas! many of them 'bolts from the blue.' I only desire to draw attention to the well-known failure of the alleged cures for foul brood, and, to suggest a new reading of an old proverb, a new reason for using the old treatment of feeding acid down. Up to now the feeding of salicylic and phenic acids in syrup was with the desire that they should act as germicides, destroying in the blood of the bee the organisms which cause its death either in the grub or adult stage, whether these organisms be micrococus, bacterium, or bacillus, whether they are septic or pathogenic in their action. Granted, for the sake of argument, that this is effectually done, it must be admitted that nothing yet prescribed which can deal with the *spore*, the origin of the micro-organism, nothing short of boiling it for over half an hour, or absolutely roasting it, or treating it to strong corrosive acid, can do this, a fact well known to Pastor Schönfeld, Mr. Cowan, and Mr. Cheshire. Klein tells us 'a great many micro-organisms can be exposed to a *one per cent solution of carbolic acid* for hours without being affected.' Now, this is five times the strength of the carbolic solution recommended as a cure for foul brood. With regard to the bacillus of anthrax, Calvert's fluid, pure terebine, and carbolic acid, ten per cent (*i.e.* ten times as strong as the solution italicised above), were found to be no more germicides than water. This authority, of the very highest rank, also says, 'I have made a good many observations on the influence of antiseptics on micro-organisms, both putrefactive and pathogenic, and have found that many assertions hitherto made on this subject are absolutely untrustworthy and erroneous.' Mr. Cheshire, in his very exhaustive book, gives drawings of seven different micrococci and bacilli found in the blood of deceased bees, *all unknown kinds* (these of course exclude *Bacillus alvei, B. Gaytoni* or *B. depilis*). We may well, then, fail in curing our bees of bacillus disease when we have so many kinds of bacilli to deal with. According to Koch and Klein micro-organisms (*e.g.*, the bacilli of foul brood) must be capable of giving a specific disease to a *healthy* animal before it can be satisfactorily proved that a particular infectious disease is due to a particular micro-organism; and I think this can scarcely be said of *B. alvei* and its congeners, for if so *no* healthy bees would escape contagion in a hive or entire apiary, whereas it is just the *healthy* animal which best resists the attacks of germ disease. Were *B. alvei et hoc genus omne* so irresistible, the disease would be practically incurable, especially by the homœopathically minute doses of the alleged cures. Do not its ravages rather go to prove that the old and senile, or sickly young, queen of a weak or worn-out race, showing a strong hereditary tendency, or an acquired susceptibility to disease, is a happy hunting ground for any of the many forms of bacillus or micrococcus which are found in the fluids of diseased bees? If these diseases attack the adult bee (queen, worker, and drone), does it not stand to reason that those individuals lacking stamina and vigour, or of a poor, weak variety, will be the readiest to succumb to the attacks of the bacillus, and prove hotbeds for the germination of its spores? Mr. Cheshire found 'a considerable number of times in bees coming from many different localities a form of liver trouble.' Surely this disease, accompanied by a dysenteric condition, resulting from various forms of bad management, would lay bees open to attacks; asking, as it were, Dame Nature to send her death angel, and put a period to such a variety so unfitted to survive, for we may be sure that even the bacillus of bee disease has its part to play in the great scheme of Nature's harmony. Perhaps, after all, they may not be the scourge and curse we think them in the long run.

If our bacilli be really affecting the blood, and spores are passed on hereditarily from generation to generation, from drone to spermatheca of queen, thus into the egg, finishing its life-history as a resting spore waiting to be carried about by the worker amongst its hairs, on its antennæ and feet, or to be blown about the apiary, surely some constitutional idiosyncrasy of the mother bee, impaired health, or peculiar condition of the blood, renders it more susceptible to disease than if in a robust, vigorous state. What, then, may this be? It is not probable that through lack or failure in secreting formic and other acids, in consequence of degeneracy or ill health, the result of some neglect on the part of the bee-keeper, the blood of the bee becomes too alkaline, and is then in this condition a *perfect cultivation fluid*, for we know that in artificial cultures of most micro-organisms acidity is death to the germ; consequently, if such exist in the culture medium, it has to be neutralised by the addition of alkalies. If so in the artificial culture it should be so in the natural, an undue proportion of alkali being favourable to germ growth and the converse. Therefore when foul brood is abroad, or when disease of any kind is about, I think we ought to use the best preventive possible by giving our bees such food as will render them, in all probability, proof against disease; and this, it seems to me, can best be done by feeding syrup strongly acidulated, whether such acid be formic, acetic, or what not, does not so much matter.

We do know this, that the best working, healthiest bees we can find certainly do not run short of acidity, either in temper or poison; and if we believe in the formic acid cure for foul brood, still further use for the poison-bag by the bee will be apparent; it will carry its own cure about with it, and apply it in brood food and general disinfection *ad libitum*—this in addition to my suggestions in a recent paper on 'The Sting and its Poison.' As I said in a recent number of the *Record*, 'It is not so much the *kind* of acid which is inimical to the growth of bacilli in the body of the bee, or the life of the spores in the foul brood itself, as it is the question whether the spores and minute organisms require acids, oxygen, nitrogenous or carbonaceous substances to develop themselves in, or in which their growth and reproduction are retarded or destroyed.' The question as to whether bacilli *absolutely* cause disease, or merely find a likely home in certain unhealthy fluids, each diseased fluid being a *special* food for a special bacillus, which takes possession of an animal only on finding ground prepared for its rapid multiplication is, after all that has been emphatically said, still a moot point, seeing that *healthy* animals resist the attacks of zymotic and pathogenic germs (in many cases life-long immunity from future attacks being obtained as a result of a first attack by animals ready for the disease and with strength to survive), whilst weak ones go to the wall. I think all our attention should be directed, in the case of bees and foul brood, to rendering the life-fluid of the bee best fitted to resist the growth of one and all of the forms of

death-dealing micro-organisms by which it may be attacked, and this can be best done by a good percentage of acid being given in food when workers or queen show signs of ill-health or flagging energy. This idea struck me when reading Klein's methods of preparing cultures. To fumigate, spray, and feed with *so-called* germicides is not going to the root of the matter, for we cannot kill the spores by any of these methods, and it is from the spores the bacillus comes. Putrefactive germs *will* thrive in blood rich in acid, but pathogenic germs (and it is with these we have to do) *will not*.

Regarding my theory that an acid condition of the blood is both curative and protective, I may be allowed to again quote from the leading light of the day on bacteriology:—'On the whole, then, we may, it seems, take it as probable that, owing to the presence in the normal blood and tissues in a living animal of a chemical substance inimical to the growth of a particular organism, this animal is *in*susceptible to the disease dependent on the growth and multiplication of this micro-organism.'

I am desirous of turning attention more *away* from perhaps futile attempts at cure by fumes and solutions sprayed about, and *towards* prevention and cure by looking after the blood of the patient.—R. A. H. GRIMSHAW, *Horsforth, near Leeds.*

SUSSEX OLD WORLD BEE LORE.

[2267.] What very odd ideas and superstitions about bees are still to this day prevalent among the peasantry of this enlightened county of Sussex! Will no able pen record them in the pages of this *Journal* ere they die out entirely before the onward march of progress? With the rise of a new and more highly educated generation much of this quaint, old, legendary lore will be forgotten utterly. Some, at least, are worth preserving, and are, moreover, possibly of considerable antiquity.

We are all familiar with the highly amusing 'experiment of the generation of bees as practised by that great husbandman of Cornwall, old Mr. Carew, of Anthony;' and our classical readers will call to remembrance the passage in Virgil's Fourth Georgic, wherein similar directions, only more poetically expressed, are given.

Our old and much-respected acquaintance, Mr. Sam. Goodheeve, recently most impressively assured us that it was his 'firm 'pinion' that if a swarm of bees settled on a dead branch it infallibly foreshadowed fatality in the family, and that at least one death would certainly occur in the owner's domestic circle before the close of the year. He gave us an instance, the fruits of his own personal experience. Possibly on some future occasion, when he is at leisure, he may be good enough to tell it in his own way to our readers. Mr. Goodheeve also assures us that if a hive of bees perish of starvation during the winter it is really of very little consequence after all, as they will certainly come to life again, sooner or later, during the ensuing summer. He tells us, further, that he has proved it over and over again. His own three honeyless 'heeves,' we hear on excellent authority, all perished before Christmas last, not having been fed in the least, and now he points triumphantly to the prosperous trio which are filled almost to overflowing with bees and honey. He assures us that *his* is the only really safe and reliable mode of treatment to follow in managing an apiary of three stocks only. And we freely allow that, considering the expense to him has been *nil* this year, the gains will be large. His father and grandfather, he tells us, held the same opinion, and never knew it fail.

Well do we know whose apiary it was that unwillingly supplied those vagrant swarms, and by no means for the first time!

Mr. Goodheeve feels naturally elated just now, and triumphantly points out to his neighbours his very prosperous colonies, and discourses volubly, and not without considerable assurance, on the eminent advantages attending his let-alone-single-straw-hive-never-touch-'em-smotheration system. The prosperity of his hives is a convincing, unanswerable argument against all comers, say his rustic auditors. Hence he gains great credit for his wisdom in allowing his bee-less straw skeps to remain on their stands through the winter instead of melting up the comparatively useless combs.

Hostess Quickly, speaking with much emotion of the merits of Sir John Falstaff to her old crony, 'that honest, civil, virtuous gentlewoman,' Mistress Dorothy, says, 'I have known him these twenty-nine years, come peascod time.' For a similar length of years have we also known 'honest, civil, virtuous' Mr. Sam. Goodheeve, and we may add, continuing the quotation, that 'an honester or truer-hearted man' doth not exist. Still, during all these twenty-nine years Mr. Goodheeve confesses that he never once bought a swarm, or has given his bees the least artificial assistance in the shape of feeding. How many times his hives have perished of starvation in the interval he does not exactly remember; and to-day his apiary is as prosperous as ever! If we were sure of our Editor's courteous indulgence we should be only too pleased to endeavour to induce Mr. Goodheeve to detail his system of treatment in the pages of the *British Bee Journal** in his own characteristic style for the benefit (we may reasonably hope) of those who, like him, still cling devoutly to ideas which, like the laws of the ancient Medes and Persians, 'alter not.' Doubtless it would not be without interest to such of our readers (if there are any, that is!) whose primitive method of management is similar, and possibly attended with results equally gratifying, although in this especial instance it is hardly so, all things considered, to—THE AUTHOR OF *Bee-keeping, Plain and Practical.*

JOTTINGS BY WOODLEIGH.

[2268.] *Disposal of Honey.*—For some years past this has been a question which bee associations have been trying to solve. The bee-tent has become a familiar fixture with most agricultural and horticultural societies at their annual exhibitions, where, year after year, the driving, transferring, and other manipulations with bees, are conducted by certificated experts, while, at the same time, a 'patter' is carried on either by the manipulator or by some prominent bee-master, giving full, though succinct, instructions how to keep bees on modern and profitable principles. The result from the glowing account of the enormous yield from a few bar-frame hives, coupled with the enhanced prices such honey will make, is that a number of the younger members of middle-class society goes in for the fad, and in the course of a season or two has some honey that he or she, as the case may be, wishes to sell. Now the difficulty of these producers is to find a market for their produce; to give it to friends they cannot afford, and to 'hawk' it they are ashamed; and it is to such bee-keepers that associations are of real benefit by finding a market through agents for the sale of members' honey. In our own 'Royal county' we have appointed agents in every town for the sale of members' honey with a county label attached to every bottle or section of honey. This is a double guarantee, first, to the agent that he is dealing with the Association through its members, and, secondly, to the purchaser of honey that he is buying pure Berkshire honey. Then another provision is made by the label that each parcel of honey is genuine, *i.e.*, by the registered consecutive number on each label. Say, I, 'Woodleigh,' write to the Secretary of our Association for 500 labels, my

* Certainly. Our columns are always open to correspondents. Any communication that Mr. Goodheeve may forward us will meet with due consideration.—ED.

500 labels would run, say, from 1500 to 2000. These numbers would be registered in a book styled *Berks Label Book* as sold to me, and every section of honey and bottle on which I placed one of these labels could be traced to me by reference to the *Berks Label Book*. This proviso acts as a check on the members of our Association to place only the best honey they have in the hands of our agents for disposal to the public; and, if we can only engender an *esprit du corps* among our members to get their sections well filled and neatly glazed in the style adopted by some of our prominent county exhibitors, I have no doubt in a few years that we shall find 'Pure Berkshire Honey' on the counter of every grocer, confectioner, fruiterer, and chemist of note in the county: and what one county can do surely others can do also, and I think that we shall be able to show rapid progress in developing a taste for pure honey as an article of food. Now, in many instances, the sections of comb honey retailed over the tradesman's counter at 1*s.* each are apt to be looked on as a luxury, and often eaten extravagantly by the smaller fry at the breakfast or tea-table as a *treat*. What we want to do is to engender in the minds of the public that honey is a necessary article of food, that a pound of honey contains more nourishing qualities than an equal quantity of butter, especially in (first, and, many add, *second*) childhood.

There is also another item of vital importance to which I have briefly alluded above, that is, the get-up of our honey for the market. On this head rests the whole matter of sales and introduction to the general trade of our commodity. It must, to command a market, be put up in a clean, neat style. Sections of honey that are bedaubed with unremoved propolis, just as they are taken from the hives, with patches of uncapped cells, can never be expected to commend themselves to a dealer who has not taken up the sale of honey. Why, the very appearance of such stuff would disgust the man if he did a good class trade; and the same parcel, if offered to a dealer who stocks honey, would have a scant chance of being accepted except at a low figure, to allow the dealer a margin for cleaning and putting the honey up in a presentable manner; therefore it is of the greatest importance, if apiarians wish to find a ready sale for their surplus honey, to attend to the perfect cleanliness of their comb-honey in sections by removing every particle of propolis or wax from both outside and inside the corners of the sections and then glazing the sections with strips of white paper, or placing them in some neat section cases. The same care should be devoted to the bottling of honey for market. First, clean the bottles and wipe dry; then, after your honey has been strained through cheese or strainer cloth to remove all particles of wax, &c., it is well to place the honey in a vessel with a valve tap at bottom, and after it has stood a few hours to allow the thin honey to rise to the top, it can easily be put into bottles. Another item of importance is to have your bottles the correct size to hold a pound of honey. I admit the specific gravity of honey varies somewhat in different seasons, and a bottle that holds sixteen ounces this year may possibly another season only take fifteen ounces, that is a matter over which we have no control, because no one can foresee the amount of sunshine we are going to get in a coming season, but there is a vast difference to the purchasing public between thirteen ounces and sixteen ounces, and we may depend on the axiom that 'honesty is the best policy' even in selling a pound of honey. The bottling of honey naturally leads to a selection of bottles, this I leave to the producer to select the shape he prefers, provided it is the right size. In a former jotting I mentioned leaking bottles, and several replies have appeared in the *B. B. J.* anent the subject, and the simplest method offered at present is that of the Rev. W. E. Burkitt, who pours a little melted wax into the cap before screwing on. Does Mr. Burkitt dispense with the cork wad, or does the wax cover the wad? The British Honey Company used to put a cork inside the neck of the bottle, then pour a little melted wax over the cork and screw on the cap over all—this completely sealed the bottle against leakage, but the many little items of expense all totted up run away with the profits, leaving the margin so narrow that even a company could not live and thrive in the business.

Carniolan Bees.—I myself cannot speak personally of their merits, but a friend (one of our best bee-masters) who has given them an extended trial tells me if I want to keep bees to sell swarms from, the 'Carniolan is the bee,' but if I want them for the production of honey he could not conscientiously commend them to me; his experience of several years is that they are not equal to our native race of bees for gathering honey, or if they gathered the honey their prolific progeny consumed it. Mr. Harvey's interesting letter *re* Mr. Reed's apiary in last week's *Journal* would almost induce me to invest in a few Carniolans if it was not equally true that hives in my own apiary tenanted by common blacks have filled up comb to the exclusion of brood-rearing, also filled three or four crates of sections above the frames: have the Carniolans done likewise, or only filled the frames? the only true test would be several hives of each strain side by side in one apiary under impartial treatment. Why, only the other day I met a bee-keeper who, with card in hand, which he coyly turned over, with totals totted up of his three or four hives of English bees, and with a playful dig in the ribs, said exultingly, 'Can you beat this record?' his highest was somewhere about 120. 'No,' I replied, 'that is beyond me unless I extract from brood-combs;' besides, with my large number of hives I have no time to coddle with any particular hive. I run my apiary on purely commercial lines, and if it did not pay I should soon reduce it to small proportions.—WOODLEIGH.

CUMBERLAND NOTES.

[2269.] We have referred to some of our advanced bee-keepers, and now make a few notes on some of the old school we have met in this district. Among these there are the usual superstitious, knowing reiterations to be met with which abound all over the country; and it requires wonderful cautiousness to deal with some of their assertions. Recently an old gentleman who has been for the past fifty years the leading bee-keeper in this locality seriously tackled me as to the loss of his two stocks during the past winter. I tried to explain that the unfavourable season had played sad havoc in other districts as well as this; still, the impression had been made and even confirmed by some other old hands that the necessary precautions had not been taken to attend to the bees on the death of a near relative. The hive should have been lifted carefully and set down again upon the board to notify the little inmates of what had taken place. On the whole, we feel that some special effort should be made to resuscitate the Cumberland B.K.A. There is abundance of enthusiastical practical apiarians who only require union to do a great work in one of the finest bee pasturage districts in England. We have noted carefully the successful agricultural and horticultural shows which have been held, and with one or two solitary exceptions this section seems to be forgotten. To those who know anything of the benefits of apiarian associations and exhibitions the want of this bond of union must be very apparent, and we are hopeful ere long will be substantially remedied.—E. MCNALLY, *Harrington.*

EXCITED BEES.

[2270.] A correspondent asks for a reason for the following:—One afternoon last week one came rushing into the house saying a hen was being killed by the

bees. She was found lying on the ground exhausted, and with difficulty got away. Then nearly all the fowls of all ages were seen flying, jumping, and both frightened and hurt; indeed, too much frightened to be got under cover; but after a time it was suggested to use the syringe, which restored some quiet. The stinging went on for over an hour probably, and the worst bees seemed to come from two hives, to which after a time the syringe was mainly directed. There were about fifty fowls, and they are fed close to the hives. The hen first found seems likely to revive, but two chickens are dead. Of course the bee-keeper was a good deal stung on the hands. Some extracted combs had been put on the strawberry bed that morning, but there had been no previous attacks. Twenty-nine hens have since been sent away, and so far there is quiet with the remainder. —Rev. T. Kirk, *Eagle Vicarage, Newark.*

[We had, several years ago, a very similar instance of the irascibility of bees. The bees suddenly rushed out of their hive and fiercely attacked a hen with seven chickens, six of which died of the stings inflicted, and the hen was in a very sad state for a week, but ultimately recovered. The cause we found to be that one of the frames, being too narrow, had fallen from its place. The sudden noise alarmed the bees, they sallied forth, and wreaked their vengeance on the innocent chickens. The probability is that something similar, either inside or outside the hives belonging to our correspondent, had caused an alarm to its inhabitants.—Ed.]

THE NEW GLASS SECTIONS.

[2271.] In the public interest I trust you will grant me space to reply to Mr. W. Rushton in the issue for July 11, page 306, No. 2222. He first of all insinuates, without actually saying so, that he had similar sections, and exactly the same dimensions, three years ago; as a matter of fact, no 'dimensions' are given in the article he refers to. Then he says, the things he invented 'appear to be nothing like that apparently recently patented by me;' all these contradictions being in the first paragraph. If they are *nothing like mine*, what is he bothering himself for?

There are other inconsistencies I need not point out, as I have no wish to derogate anything from an undoubted genius, if he really has invented a glass section at all—no matter how he worked it out.

I need not go into the question as to when I invented the sections, as the law assumes they were invented the day the patent was applied for. I may say, however, that the sub-editor saw and handled some of my glass sections filled with honey and sealed over last November. Also one has been on exhibition at Messrs. Neighbour's, 149 Regent Street, W., since about November 1.

A copy of my patent, which contains seventy-five illustrations, may be obtained by any one in the country by sending 2*s.* 7*d.* to the Comptroller, Patent Office, 25 Southampton Buildings, Chancery Lane, London, W.C., and asking for copy of patent for bee-hives, A.D. 1888, No. 7660. By return of post they will receive a Government blue book, in which they will find the date and all particulars.

Lest any should think I am setting up claims to all and every form of glass section, let me repeat that I do nothing of the kind; glass sections I know are more than ten years old, in fact, the first honeycomb sections I ever saw were glass ones. What I claim are sections constructed on a new principle, which I have covered by royal letters patent. Glass sections might be made to look like them, and yet be no infringement; while others, that looked quite different, would be.

The invention is now before the public, and it is for them to either use it, let it alone, or invent something different or better. I may, however, frankly say that I did not work at solving the problem so much with the intention of benefiting the public as myself; and while I shall stand no tampering with it, I intend to charge so low, that not only can the poorest use it, but it won't be worth their while to risk the legal consequences appertaining to an infringement.—The Patentee.

[In allowing the above letter to appear, we would remark that we do not understand Mr. Rushton's letter in the way 'The Patentee' interprets it. We intend to publish an extract from the patent specification, so that our readers may see what is patented; and if they desire to make a few glass sections they may be able to do so without infringing the patent.—Ed.]

WASP'S NEST IN FRAME-HIVE.

[2272.] The nest is evidently almost at a standstill, there being no visible alteration.—C. C. Moore, *Altrincham, Aug. 19th.*

A SUGGESTION.

[2273.] I would suggest that a request be made in your *Journal* that the experiences of those who have made use of chloroform in their apiaries should be sent in to the Editor. I think if the replies were sent in time to appear in your *Journal* Sept. 12th it would give sufficient time to give results.—Owen B. Tyler, *Wootton Vicarage, Shepton Mallet, Aug. 14th.*

Echoes from the Hives.

Port Mahon, Minorca, August 10th.—Season bad here on account of drought still. We have managed to extract some twenty quintals, very fine white honey, and sold all. Eighty hives did it.—F. C. Andreu.

Sunderland, August 15th.—The weather hereabouts for the last ten days or so has been about as bad as it well could be—cold, windy, and very wet. On the 31st ult. I sent four hives to the moors, some thirty miles distant by rail, but fear they will not pay expenses unless the weather improves, and that very shortly. My best hive has yielded sixty-eight completed sections of clover honey.—Frank Gayner.

Honey Cott, Weston, Leamington, August 19th.—The season here is over, and has been some time. The chief thing now is getting unfinished sections extracted and put on top of hives that have been purposely deprived, so that they may go up and clean them out. I find it a good plan to place one empty crate on the hive (of course the bees only have access through the feed-hole at top), then the crates with sections to be cleaned out placed on top of the empty crates, and tiered up to any amount, where they can remain till there is time to put them away. Another thing I am doing as fast as I can is looking through stocks that have too much honey in the brood-nest by taking a comb or two away and extracting them, and if necessary placing some in the centre, while in other cases the stocks are shut up closer on to a smaller number of frames. Another thing, in some cases queens require to be superseded. Last week, during a dull, cold evening, I went a few miles and drove seven stocks out of skeps. The first lot I started on were like demons. Wear a veil? Yes, I should think so. Well, it was the first or second lot of the season. I suppose I had forgotten to give them enough time to get frightened. I had carried them twenty or thirty yards away, and usually at that distance they would soon be off home, but not these till they had had a good try to find a vulnerable place where they could pay me off. However, it was no use, so I got a strainer and laid over them, and took them to a fresh place, and soon had them with their slippers on, racing out the hive as though they were going for dear life. The other six lots just took it as a matter of course, and fell in with my wishes entirely. I am not going to say I did not get stung

with that first lot, but it was only on the hands, and I do not take much notice of that, especially from a bee; but I had a stab from a wasp on Saturday night which made my hand swell very much. The wasps are very numerous and annoying here. If there are any combs or honey about they will show themselves. I have destroyed five nests myself, and have heard of others being destroyed close round here, but still they come. I have used turpentine, placing a rag saturated with it in the entrance.—JOHN WALTON.

NOTICES TO CORRESPONDENTS & INQUIRERS

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

C. R.—*Capacity of Hive.*—The plan would not do, as the hive used in the autumn for supplying combs of stores would be so reduced in bees as to be practically useless. It has been tried, but only answers if a hive is very strong and full of bees. Brood-rearing requires much pollen, and this requires many bees to collect it. Ten or eleven is the best number of frames if working for comb honey, but at some times even more may be used with advantage, as much depends on strength of colony at the time of honey-flow. Ten frames were first adopted, because with this number it was found the hive was the most convenient, being square, and being of the right capacity for working supers. If working for extracted honey, the number of frames is only limited by the capacity of colony, and we have had forty-four when working the storifying principle.

T. JAMES.—1. *Finding Queen in Colony.*—It is quite possible to find the queen in the manner suggested, but very inadvisable. As your eyesight is bad you would find it just as difficult to 'spot' the queen, as the bees would cluster around her outside the excluder zinc. The most easy way to discover the queen on a comb is to hold it diagonally, thus gaining a sight of the legs and under part of the queen, which are much lighter in colour than the workers. 2. *Drone Breeder.*—If it is a queen that breeds the drones, not a fertile worker, she would return to the hive from which she was removed. 3. *Sample of Honey.*—The honey has a good flavour and a fair consistency. The colour is rather dark. 4. *Sugar.*—Both samples will be found serviceable for making syrup. No. 2 is preferable.

G. W. HOLE.—1. *Removing Apiary a short distance.*—Wait until the bees have been confined to their hives for about six weeks by winter weather; then remove them, making their new location to look as much like the old one as possible. Place the hives in exactly the same position as relates to each other as they did in their original position. 2. The plant enclosed is *Bartsia Odontites*, of very little value as a honey-producing plant, although bees may frequent it. It is an annual, and a plague to farmers on light soils.

A LOVER OF RIGHT.—1. *Maiden Swarm.*—Such a swarm is called a maiden swarm. Swarms of the current year issuing as late as the 15th June rarely make any surplus. They ought to be in good condition to winter; if not, feed them at once with autumn syrup until they have about 20 lbs. stored. 2. *Carniolan Bees.*—Hybrid Carniolans are excellent workers, and when, as with Carniolans, in the hands of those who understand them, do not swarm more than any other variety. 3. *Virgin Queen.*—It is not too late if you have plenty of drones in the apiary; if you have none, it is. 4. *Swarm of 11th August.*—Feed up at once, as above.

ROBIN HOOD and EAST DULWICH.—No. 1 is considered the best honey-producing heath; No. 2 is also a very good honey-secreting plant. They both pass under the collective name heather.

JASMINE.—Your letter has been forwarded.

E. G.—Your letter has been received; but we think it would be prudent not to give it insertion in the *Journal*.

W. LEY.—*Age of Queens.*—Young queens are more sprightly in their movements than old ones. The wings of the latter are frequently torn and jagged. The best and surest way of determining the age of the queens is by taking the trouble to keep a register, chronicling the life-history of queens and hives.

W. C.—The pieces of comb forwarded are not infected with foul brood.

GROCER, NORFOLK.—*Doubtful Queen.*—We should say the queen has been excited to great egg-production, possibly in excess of ready polished cells, and she cannot help laying several eggs in one cell. 2. *Stings.*—Have you tried Grimshaw's Apifuge? Tobacco-juice moistened and rubbed on the affected part, or a little honey, stops the irritation; but the constitutions of the human race are so dissimilar that what will alleviate the pain in one aggravates in another. Those who have been stung a number of times feel little or no pain.

*** *Some replies reserved for next issue.*

SHOWS TO COME.

NOTTS ASSOCIATION.

Sept. 5.—Greasley and Selston.

Hon. Sec., A. G. PUGH, *Mona Street, Beeston.*

NOTICE.

THE SIMMINS' BEE COMPANY, Limited.

'In LIQUIDATION.'

THE Shareholders of the above Company having obtained an order from the High Court in Chancery, for the removal of Mr. W. M. GRAHAM as Liquidator to the above Company, an order was obtained from the above Court, with the approval of the Shareholders, for the appointment of Mr. F. G. CLARK of Brighton, Chartered Accountant, to be the Liquidator to the above Company.

All communications to be addressed,

F. G. CLARK, *Chartered Accountant*,
Post Office Chambers,
SHIP STREET, BRIGHTON.

SIMMINS' BEE COMPY, LTD.

'In LIQUIDATION.'

The Queen Rearing and Honey Producing Apiaries.

The whole of these extensive Premises, situate at Balsdean and Rottingdean, Sussex, for DISPOSAL.

BALSDEAN.—Consisting of the covered Apiary, 75 ft. by 5 ft., with Hives, Appliances, and Stock in Trade.

ROTTINGDEAN.—Consisting of Workshops, Extracting Comb and Store Rooms, with a large quantity of Timber, Hives in the flat and made up, Queen-rearing and other Appliances, with Stock in Trade and the Goodwill of this excellent concern.

This offers an opportunity, rarely to be met with in England, for an energetic man, who is a qualified Bee-keeper, with a small capital.

For full particulars apply Mr. F. G. CLARK, Liquidator to the above Company, Chartered Accountant, Post Office Chambers, SHIP STREET, BRIGHTON.

Special Prepaid Advertisements.

Exchange Column.—Sales of Honey and Second-hand Goods.—Intended to aid Bee-keepers in the disposal of Bee-produce and Appliances for which they have no further use. Terms: Twelve words and under, Fourpence; for every additional Three words, One Penny extra.

Situations, Publications, Bee Plants, &c.—Twenty words and under, One Shilling; for every additional Three words, One Penny.

HOOKER'S GUIDE TO SUCCESSFUL BEE-KEEPING. Price 9*d.*
JOHN HUCKLE, Kings Langley, Herts.

BEE-KEEPING, Plain and Practical: How to Make it Pay. By A. RUSBRIDGE, 1*s.* 6*d.*, post free, 1*s.* 8*d.* Address J. HUCKLE, Kings Langley, Herts. A 1253

WANTED.—Copies of *British Bee Journal* for January 7th, 1886, and Nov. 1873. Full price given.

WANTED.—Copies of the first Nos. of *The British Bee-keepers' Adviser.* Full price given.
JOHN HUCKLE, Kings Langley, Herts.

PURE CARNIOLANS (Autumn Prices). Guaranteed healthy Six-frame Stocks, 18*s.* 6*d.* Hive-frame Nuclei, 12*s.* A few Carniolan Hybrid Queens, 3*s.* 6*d.* each. All Queens reared this Season. Address FRANK REED, Stonereigh Apiaries, Portslade, Brighton. (220)

PURE CARNIOLANS, guaranteed healthy, 3 Frame Nuclei, 15*s.*; 6 Frame Stocks, 25*s.*, headed with Young Prolific Queens. Address FRANK REED, The Stonereigh Apiaries, Portslade, Brighton. E 46

HONEY SECTIONS of best quality purchased for Cash. Address T. SMITH & Co., Cambridge Street, W. E 86

FOR SALE.—A well-stocked Observatory Hive (formerly the property of Rev. H. R. Peel), including Six Frames and a Bar-frame Travelling Hive for Wintering the Bees. In capital condition, price £3 3*s.* Address W. STURDY, Thornton Hall, Stony Stratford.

WANTED, first quality Section Honeycomb (1-lb.) Also New Run Honey in bulk. Any quantity. Terms cash. Address Mr. E. HURST, Bexhill, Sussex.

FOR SALE.—Thirteen Straw Supers of splendid White Clover Honeycomb, from 10 to 14 lbs. each. For price, address JAMES STEPHENSON, Straw Skep Manufacturer, Beek Isle, Pickering, Yorks. F 7

OBSERVATORY HIVE, 8 Frames and a Super; Bees very strong; Hive full of Honey; £2. Address F. BRAMWELL, 73 Church Street, Preston. F 12

ABBOTT'S 'Little Wonder' Extractor, good condition, price 5*s.* 6*d.* Address H. FUGGLE, Petham, Canterbury. F 2

WANTED.—Condemned Bees in 3-lb. lots, with price, packed on rail to ROBINSON, Photographer, Arcade, Hawick, N.B. F 17

FOR IMMEDIATE SALE.—Strong healthy Stocks of Bees in Makeshift Hives, on rail. Cash offers wanted. Address ELLIOTT, Taunton. F 18

FOR SALE.—Driven Bees during September, 1*s.* 6*d.* per lb., package free, with Queen. Address HUNKIN, Avon Villa Apiary, Poole, Dorset. F 19

TRIAL CABBAGE PLANTS.—Score each of Ellam's Early, Sutton's Imperial, Dickson's First and Best, Carter's Heartwell, Webb's Emperor, Queen's No. 1. Warranted true. Seed sown July 20. 1*s.* 6*d.* free. Address HEARTWELL, Clun, Salop. F 20

FOR SALE.—About Two Hundredweight of Extracted Honey. Purchaser to find receptacles. Address R. W. EAGLETON, Post Office, Parson Drove, near Wisbech, Cambridge. F 21

FOR SALE.—A few Young Carniolan Queens, 3*s.* each. Address G. EDLINGTON, Brigg, Lincolnshire. F 22

STOCKS.—Fourteen, in Straw Hives. Seven last year's Swarms, and seven this. All swarmed before June 14th. The whole lot for £5 5*s.*, or seven for £2 12*s.* 6*d.*, on the place. Apply to FREDK. SAMUEL FLETCHER, The Maples, Ottershaw, Chertsey, Surrey. F 23

FOR SALE.—Seven-Frame Stocks of English-bred Carniolan Bees, £1. 1*s.* Address JOHN WALTON, Honey Cott, Weston, Leamington.

DRIVEN BEES at 1*s.* 3*d.* per lb. Guaranteed healthy. Address CHAS. WHITING, Saddler, Hundon, Clare, Suffolk.

HONEY WANTED.—Run and Section. Good quality. Low price. Address BOLTON, Chemist, Southgate.

WANTED.—Secondhand Honey Extractor and Ripener. Address JOHNSON & SON, Soham, Cambs. F 23

SPLENDID CARNIOLANS,

BY RETURN OF POST,

DIRECT from CARNIOLA.

DURING remainder of this season, **Finest Selected Breeding Queens, 5s. 6d.** each; **Choice Prolific, 4s.** each. All bred during 1889. 6 Queens, 5 per cent discount; 12 Queens, 10 per cent.

Carniolans are exceedingly gentle, excel all other Bees in wintering in cold climates, and **equal as honey gatherers any race native to Europe.**

Queens are sent in a cage invented and first used by myself, Carriage is Paid and Safe Arrival Guaranteed.

Remittances by **blank** Postal Order, International Post Office Order, or by Cheque. **FRANK BENTON,** 'The Carniolan Apiary,' **Krainburg,** Upper Carniola, **Austria.** (221)

THE YORKSHIRE Bee-keepers' Supplies.

1889.

PRIZES awarded at the HULL Show.

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1st and a 2nd for EXTRACTORS.
1st for COLLECTION of BEE APPLIANCES.
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1st for OBSERVATORY HIVE OF BEES, &c.

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A 3962

BEESWAX:

Its Economical Uses and Conversion into Money.

By J. DENNLER,

AUTHOR OF 'HONEY AS FOOD,' 'HONEY AND ITS USES,' ETC.

Translated from the German, and Edited by

THOS. W. COWAN,

EDITOR OF THE 'BRITISH BEE JOURNAL.'

ILLUSTRATED, Price 3½d., Post Free.

'BEE JOURNAL' OFFICE,
KINGS LANGLEY, HERTS; AND 17 KING WILLIAM STREET, STRAND, W.C.

THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.

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Editorial, Notices, &c.

HIBERNATION.

In its general acceptation this term is somewhat misleading. One is very apt to think it refers to a state of insensate quiescence simulating death, in which the subject temporarily loses the power of movement, and, at the same time, the sense of feeling, a sort of trance, like semi-death in point of fact: anyway such seem the symptoms of hibernation. To be correct, to say the least of it, we should take a much broader view; in its best and freest rendering we must call hibernation a mere wintering, a passing winter in a state of seclusion, or in lethargic sleep; in torpid, sluggish, numb inactivity; in a drowsy rest. So pass away the hibernal months with our honey bees; so, too, in a similar way, but in varying degrees of intensity, all animate nature exhibits a tendency towards inactive rest and sleep when the temperature of the surrounding air falls below the normal point necessary for activity and progression. The amount of cold (more correctly, decrease of heat) necessary to produce this wintering condition varies, of course, with the susceptibility of the subject, a continued decrease of heat producing the sleep of death, whilst an increase develops a tendency towards life and activity.

We have then to ascertain what degree of cold can be borne by our bees and yet survive until revived by returning heat, and this is a question more easily asked than answered. They have been known to winter in this country under a hive floor-board with no protection for the cluster other than that offered by a few pieces of comb; and every bee-keeper knows how he may take quantities of bees from a surface of snow, after they have been 'out all night,' with the glass below freezing, and bring them round again to humming, stinging life by simple warmth. To freeze the queen-bee slightly and then thaw her majesty results in no further mischief than the destruction of the live contents of the spermatheca, thus rendering her a confirmed drone-egg-layer henceforth. It more concerns us to deal with the temperature within the hive. Réaumur is distinctly of opinion 'that during the greater part of the time in which the country furnishes nothing to bees, they have no longer need to eat. The cold which arrests the vegetation of plants, which deprives our fields and meadows of flowers, throws the bees into a sort of torpidity, in which no transpiration from them takes place; or, at least, during which the quantity which transpires is so inconsiderable that it cannot be restored without their lives being in danger. In winter while it freezes, one may observe without fear the interior of hives without putting any bee into motion.' Huber, on the contrary, tells us that, far from being torpid in winter the heat in a well-peopled hive is 86° or 88° (Fahr.) when it is below freezing in the open air.

Both these eminent men are evidently in error on this point. Huber first, inasmuch as he had to disturb his bees in order to get his temperatures, he would thus get a false register of the normal heat of a well-filled hive when in a quiet state, with the outer air at freezing. Réaumur, too, proves himself wrong by stating that bees are so susceptible to cold that if they are unable to keep the hive heat above 57° Fahr. they perish.

While not agreeing that bees cannot stand a temperature of 55°, or even much less, this principle holds good; if we can maintain as even a temperature as possible, varying from 60° to 70° Fahr., we fulfil one of the essential conditions of successful hibernation. If we can do this our bees are kept in a serene, semi-dormant state; and whilst in this condition there is naturally a much reduced consumption of food, and the resultant objections of an undue injurious quantity of moist hot air charged with carbonic acid gas, this moisture frequently freezing on the combs, and the carbon di-oxide sinking upon cooling, to be raised again during the next excitement in poisonous death-dealing doses. In the pamphlet on 'Wintering Bees,' which should be carefully perused by all bee-keepers interested in this question, we are told the normal heat one should endeavour to steadily maintain is 65° to 70° Fahr.

Pure air, as we know it, cannot be supplied conveniently to bee-hives without subjecting the inmates to the variations of our notoriously changeable climate, thus producing the very evils we wish to avoid—extra consumption of food, with its train of dire consequences. We may, though, provide an empty chamber below the clustered bees, which will have a tendency to keep the air in the hive more equable as regards foul fumes and temperature than without such a space, and we are pleased to notice that hive makers recognised this point in exhibits at the recent Royal Show, a shallow frame or section lift being made in such a manner that part of it may be used in winter as a ventilating rim under the brood-nest. Moisture and foul air there must be in some proportion, and the less we have of these the more we minimise the risk of loss. *Pervious* quilts and narrowed entrances are preferred by some, the moisture and warm carbonic acid gas being absorbed by and passing through the non-conductive covering. On the other hand, successful wintering is accomplished by using *impervious* American cloth, kamptulicon, linoleum, oil-cloth, roofing (not boiler), felt, &c., these being covered by warm clothing which holds the heat and keeps the tops of the frames at a pretty uniform temperature, but in this case the widest possible entrances are given.

At all risks, currents of either cold or warm air passing through the hives are to be strongly deprecated, whilst any plan which assists in removing moisture and impure air in the slowest, steadiest, most uniform fashion, should

find acceptance. So shall we be best assisting our bees to spend Nature's long sleeping period in that drowsy, sluggish state, midway between absolute death and active life, in which they best work out their annual sentence of 'three months' imprisonment without hard labour,' with the prisoner's usual amount of exercise, with just sufficient food, enough blanket, moderate ventilation, little light, whilst work is reduced to a mere name, cell-cleaning being almost as much as is required. The spring soon shines again, and when the prison doors of winter fly open, the flowers, too, are free to commence another cycle of work, all Nature shakes off the shackles of hibernation, vernal vigour surrounds her, the erstwhile torpid worker-bee joins in the chorus and prospers the art, unwittingly, of the glad bee-master.

USEFUL HINTS.

Weather.—Still cold, wet, and miserable, with slight snatches of glorious sun. No honey being gathered. Such must be the report for the last fortnight, and at time of writing there seems but little chance of any immediate improvement.

Extracting.—Those who have delayed in this matter will now be experiencing the unpleasantness of their position, for to those engaged during the delay no genial weather is being accorded in either the mornings or the evenings in which to open the hives, and, what is of considerable importance, the coldness of the weather which delays the extracting is at the same time hastening the thickening of the honey, and so making it all the more difficult to extract. The very earliest opportunity should be seized upon to complete this operation. We are of opinion that it will be the best policy not to extract nearly so close this season as is usually done. Bees are not in such good heart as is usual at this period of the year, and it will be well worth while to reduce as far as possible the further enforced labour to them consequent upon close extracting. In fact, many bee-keepers are in the habit of extracting much closer than is good for the bees, even in favourable seasons. Another fact to be borne in mind is that all syrup fed to the bees has to be *ripened* before being sealed. Now as such ripening consists largely in evaporating the excess of moisture (which it is necessary should be present when the syrup is given to them, in order to enable them to carry it to the cells) it will be seen at once how the labour of the over-extracted stock would be increased by autumn feeding if cold, damp weather continues, and what an immensely increased expenditure of vital force is entailed by late feeding as compared with feeding completed in good time. Beginners doubtless wonder why we so persistently urge the completion of the various manipulations of the apiary in good time. We do it simply and solely to save the vital force of the bees, and nothing so much conserves that as giving the bees the opportunity of *completing* their various labours in the weather that is most natural, and consequently most suitable. Our old experienced readers will excuse this explanatory digression which has been made in favour of those who occasionally find a little knowledge a doubtful benefit.

Sections.—These should have been removed ere this, but where not already done they should be removed on the first warm day. Those partly filled can either be used on the breakfast-table or be placed behind a queen-excluder dummy for the bees to clear out, when the built-out combs will be found very acceptable next spring if they are carefully stored in newspapers till wanted. We prefer newspapers, because it has been authoritatively stated that moths do not like the smell of the oil used in the ink.

Robbing.—The honey-flow having ceased great care will be necessary in all manipulations, such as extracting, returning extracted combs, and feeding, to prevent this curse of the apiary being engendered. A very slight negligence will sometimes decimate our stocks.

Wasps.—These are now more numerous, and are busy prying about with intent to commit a felony, and their ways are as peculiar as those of the Heathen Chinee of famous memory. It is amusing, and withal instructive, to see a wasp prospecting the door of the cupboard where the jams, &c., are stored, how every cranny is tested to see whether an entrance can be gained, and in most instances it is found that some way has been gained, which appears on examination to be far too small to allow of the wasp passing through. This should be a warning to stop all chinks around our hives, honey-cupboards, &c.

Feeding.—This is now an all-important matter and admits of no delay. In any instances where there is the slightest suspicion of foul brood the syrup should be physicked. Where it is known to exist the medicated syrup should be forced into empty combs with a syringe, and at least two frames so filled placed in the *centre* of each brood-nest; the bees are of necessity then compelled to remove the syrup to suit their convenience, and thus take the course of medicine they will frequently refuse under any other conditions.

Cleaning up.—The harvest being practically ended all surplus fittings should be very carefully cleaned and stowed away till again required, and great care exercised that no trace of honeyed water even be left about to run the risk of inducing robbing.

Roofs.—These should be finally inspected and repaired as may be necessary to meet the storms of the coming winter. A coat of paint costs little but saves much.

Queens.—Where necessary these can be still introduced, but the sooner done the better, so that should we get St. Luke's little summer she may have a fair chance of re-populating the hive with young bees for the winter. Under no circumstances let any newly-queened hive experience even the suspicion of stores running short. In fact, we advocate a very gentle feeding to all stocks in conjunction with re-queening, especially in the autumn. In our opinion it tends towards a feeling of general *bonhomie*.

BUSY AMONG THE BEES.

'The whirligig of Time,' says Shakespeare, 'brings in his revenges,' but the whirligig also brings in his changes, which cannot always be regarded as revenges. The old order, it is true, giveth place to the new, but after a time we return occasionally to the old order to try it once again. In the early days of the B.B.K.A. it was usual in the exhibition tent to give frequent demonstrations of transferring, and it was usually considered right to cut up a skep and transfer its contents to a bar-frame hive. A very messy and troublesome task it was. But wiser counsels have prevailed in later years. It is allowed on all sides, I believe, that it is better to await a swarm from a skep, or to keep a skep for its swarms, than to cut it up and to transfer the combs to a bar-frame, as was once the custom.

Yet to-day three of us have been busy with this very task of transferring. The whirligig of time has taught us that we must sometimes revert to old fashions. Three hives have come this year into my possession, the frames of which are not of the 'standard' size. I determined, therefore, to transfer the combs into 'standard' frames as soon as the honey-harvest was over. The excellent expert of the Essex Association (W. Debnam, Primrose Hill, Chelmsford) had undertaken to attend, and a 'bee master,' from a distance, fortunately was able to join us. We began by placing the combs of one of the hives (after all the bees had been shaken off into the new hive) in a separate box, carefully covering all the combs to prevent chilled brood. We next took the box with its contents to the bee-house, cut out the combs, placed them in the 'standard' frames, tied them in two places with 'bass,' and as soon as we could took them back to the bees in the standard-frame hive. This

operation was repeated in the case of two other hives. By the time the work was finished, we had had quite enough of it. The scent of the honey on such an occasion is sufficient to arouse every bee in the apiary, and the wasps, of course, are in constant attendance. The temptation to robbing is such that the greatest care must be exercised for some little time, and if the hives had not been very strong, I should scarcely have made the attempt to transfer.

After transferring, we proceeded to inspect the other hives. Unfortunately we soon came upon traces of foul brood. Nothing more annoying can happen to a bee-keeper than to find foul brood in any of his hives. I was only too well aware that the disease was in my apiary, but I had hoped that the crystals, filled with a solution of carbolic acid and alcohol, as recommended by Hilbert, to say nothing of the camphor constantly placed in the hives, would have effected a cure. Not a bit of it! One hive, made up of driven bees last year, and supplied entirely with new comb foundation, was in a very bad condition, though filled from end to end with brood and honey. Another, very strong and promising, was affected, as was a third with a young and most prolific queen. What shall I do? was my question. The answer of both my friends was very decided: 'Destroy the three.' I had often regretted that in changing my residence from Herts to Essex I had not made away with all my bees, to say nothing of my hives, and begun again with new stock in the 'fresh fields and pastures new' upon which I had entered. 'Have you read of ——'s new cure in the *Bee Journal?*' asked one of our party. 'Yes,' replied another, 'and I wish I could believe in it.' Debnam told us that he had destroyed fourteen stocks affected with the disease in one apiary, and that in doing so he had found a 'perfect cure.' Fresh bees had been introduced, and all was going on well. Could I hesitate under such advice? 'You will still have a number of strong and healthy stocks, and, moreover, will secure a quantity of honey from the hives we break up.' The argument was irresistible, and the work of destruction entered on at once. The bees were shaken off their combs into a skep, the hives removed, the combs taken into the house, the brood was cut out and buried, and the bees in the skep were consigned at a later hour to a sulphurous grave. Much as one may regret this wholesale destruction, I am inclined to believe that the wisest plan in most cases is to destroy the bees in any hive in which there is a trace of foul brood. I tried the phenolated syrup last year, and fancied that it would effect the cure so often claimed for it. For a time it seemed to be successful, and there can be no doubt that phenol in some form or another in an apiary is very valuable. The feather with the carbolic solution applied at the entrance and on the top of the frames should act as an antiseptic, but the trouble involved in feeding with phenolated syrup, or applying other remedies, as they are called, is often such that I cannot but believe that the best and quickest course in foul brood is to 'stamp it out' as soon as discovered. Those who try experiments for the purpose of curing ills of any kind are among the greatest benefactors to humanity the world possesses; nor can it be for one moment supposed that science will be, or is unequal to, the task of averting or healing this pestilential disease. But science must not claim the cure of a single case as a complete and permanent success. Men who have obtained a transient success are too apt to rush at once to their friends and to exclaim almost in the language of the famous conqueror of old, '*Veni, vidi, vici.*' 'Prevention,' says a famous old proverb, 'is better than cure,' and now that I have a number of healthy stocks, I shall endeavour, by carefully disinfecting everything in the apiary, by at once destroying every hive with a sign of foul brood, and by eschewing driven bees from any but a very safe quarter, to prevent rather than cure that scourge of the apiary, foul brood. I should add that the hives which we broke up were full of honey, so that the gain in one way quite counterbalanced any possible loss on the other.—E. Bartrum, D.D., *Wakes Colne, Essex.*

ASSOCIATIONS.

TAUNTON FLOWER SHOW.

The twenty-second annual show of the Taunton Deane Horticultural and Floricultural Society was held in the Vivary Park at Taunton on Thursday, August 15th, and was most successful, it being the general opinion that the exhibition was the finest ever held during the long existence of the Society.

The bee-keeping department of the show fully maintained its popularity, notwithstanding the fact that it had been shorn of the attraction of manipulation. There was an excellent display of honey, which, although not the largest brought together under the auspices of the Society, lacked nothing in the way of quality or of excellence in preparation for the show-table. The sections were well filled, admirably finished, and perfectly packed, while most of the run honey was unusually clear and good. The prize for the best collection of comb and run honey from one apiary fell to the lot of Mr. W. Pierce, of North Petherton, who is well known as a successful bee-master. It was a charming display, and attracted much attention. The winner of the second prize was Mr. H. Barter, of Taunton, who announced that the whole of his fine exhibit had been taken from two stocks of bees. Colonel Lowis, of Bagborough, took the lead for honey in sectional supers with a really perfect lot. The other winners in this class were Mr. W. A. Withycombe, of Bridgwater, and Mr. H. Perry, of Sampford Brett. The names of Messrs. Pierce, Barter, and Withycombe, also figured as winners in other classes. There were several fine stocks of bees shown in observatories, but the hives were all slightly incomplete, and the judges declined to make awards, because the exhibits did not comply with the rules. It was distinctly stated in the schedule that the frames were to be visible on both sides. One of the exhibitors, in his anxiety to show a specially strong stock, crammed his observatory with fifteen frames, all crowded with bees, the result being that none of them could be moved an inch, and it was impossible to see both sides of a single frame. In the other cases the simple little contrivance for moving the frames was absent, and even the judges were unable to examine them. The Committee, however, decided to give a special award in each case, in consequence of the general excellence of the exhibits and the trouble taken to fit them up for the show. The display of bee-keeping appliances was unusually small, none of the great makers having entered this year. There was a good show of wax, but only a few of the exhibits had been carefully prepared. During the afternoon lectures on bees and bee-keeping were delivered in the tent by the Rev. C. G. Anderson, of Otterhampton, and Mr. C. Tite, of Wellington, both of whom answered numerous questions asked by the spectators.

NORTHAMPTONSHIRE BEE-KEEPERS' ASSOCIATION.

The annual show was held on Wednesday and Thursday, August 21 and 22, in Abbey Park, Northampton, in conjunction with the Horticultural Society's Show. About 500 lbs. of honey were staged for competition in sections, supers, designs, and extracted, and was pronounced by competent judges to be both in quantity and quality by far the best display ever seen in Northampton. A large quantity of honey was also staged not for competition, including a Stewarton super, a glass case filled

with sections, and a few glass sections, several dozen jars, and a cake or two of beeswax.

The judges, Mr. James Francis and Mr. W. E. Stimpson, Northampton, and Mr. J. Shaw, Moulton Park, deserve the thanks of every exhibitor and every member of the Association for the great pains they bestowed on the exhibits before giving their awards as follows:—

Class 1, for the best 12 1-lb. sections (8 entries).—1. (by the President, Mr. W. H. Foster, J. P. C. C.) Mr. O. C. Hollis, Boughton; 2. Mr. C. Cox, Brampton Station; 3. Mr. G. Smith, Boughton; 4. Mr. H. Ringrose, Boughton.

Class 2, for the best 12 1-lb. bottles extracted honey (10 entries).—1. (by the President) Mr. H. Collins, Berry Wood; 2. Mr. H. Ringrose; 3. Mr. G. Smith; 4. Mr. W. Manning, Northampton; 5. Mr. C. Cox.

Class 3, for the best super of honey in glass, or wood and glass combined (4 entries).—1. (by the President) Mr. O. C. Hollis; 2. Mr. J. Adams, West Haddon; 3. Mr. C. Cox; 4. Mr. H. Collins.

Class 4, device or design in honey-comb worked out by the exhibitor's bees (3 entries).—1. (by the President) Mr. C. Cox; 2. Mr. W. Baldwin, Church Brampton.

Class 5, open only to those who have not before taken a prize for honey. Best six sections (six entries).—1. Mr. E. Cox, Badby; 2. Mr. G. Burton, Boughton; 3. Mr. E. Storton, Harlestone. Best six 1-lb. bottles extracted honey (10 entries).—1. Mr. H. Collins; 2. Mr. E. Cox; 3. Mr. W. Manning; 4. Mr. E. Storton. Best super of comb honey (3 entries).—1. Mr. J. Turner, Pitsford (nett weight, 57 lbs.); 2. Mrs. C. Smith, Boughton; 3. Mr. G. Burton.

Mr. W. Bazeley, Sheep Street, Northampton, was also highly commended for his large collection of bee-keepers' appliances and honey.

SWANMORE BRANCH OF THE HANTS AND ISLE OF WIGHT BEE-KEEPERS' ASSOCIATION.

This very successful branch held its annual show on Monday, August 5th (Bank Holiday) in Swanmore Park, Bishop's Waltham. The Hon. Sec., Mr. C. Martin, is to be complimented on the excellent arrangements made for the exhibits in their different classes, and for the attractive staging of the same. The judges were the Rev. H. W. Bull, of Titchfield, and Mr. J. J. Candey of Portsmouth, but owing to the inclemency of the weather, the latter was unable to reach the show in time, so his place was kindly and ably filled by Mr. C. Martin. The list of awards is as follows:—

Class 1.—For the best 12 lbs. of super honey in sections of 1 lb., and not exceeding 2 lbs. Presented by Mrs. W. H. Myers. 1, Rev. W. Medlicott, 10*s.*; 2, Mr. A. Privett, 7*s.*; 3, Mr. E. Ainsley, 5*s.* Class 2.—For the best 12 lbs. extracted honey in bottles of 1 lb. or 2 lbs. Presented by W. H. Myers, Esq. 1, Mr. E. Ainsley, 10*s.*; 2, Mr. A. Privett, 7*s.* Class 3.—For the best 12 lbs. of honey, 6 lbs. in 1-lb. supers, and 6 lbs. extracted in 1-lb. bottles. Presented by Mrs. W. H. Myers and the Misses Goodlad. 1, Mr. E. Ainsley, 8*s.*; 2, Mr. A. Privett, 6*s.* Class 4.—For the largest and best display from one apiary, comb and extracted honey. Presented by County and Swanmore Branch. 1, Mr. A. Privett, bronze medal and 7*s.* 6*d.*; 2, Mr. E. Ainsley, Certificate and 4*s.*; h. c., Rev. E. Medlicott. Class 5.—For the best super worked on the top of a straw skep. Presented by the Misses Goodlad. 1, Mr. F. Sparkman, 8*s.* Class 6.—For the best 6 lbs. of super honey in sections of 1 lb., confined to members who possess only one hive. Presented by County and Swanmore Branch (competitors in this class must have manipulated their own hive). 1, Mr. C. Martin, certificate and 6*s.* Class 7.—No entry. Class 8.—For the best sample of pure beeswax, not less than 1 lb. in weight. Presented by Rev. W. E. Medlicott. 1, Mrs. Singleton, 4*s.*; 2, Mr. Ainsley, 3*s.*; 3, Mr. Nicholson, 2*s.*

The following classes for cottagers and artisans:—Class 9.—For the best 6 lbs. of super honey in sections. 1, Mr. E. Ainsley, 5*s.*; 2, Mr. J. Griffin, 3*s.* Class 10.—For the best 12 lbs. of super honey in sections of 1 lb. and not exceeding 2 lbs. Presented by Mr. Privett and Mr. Churcher. 1, Mr. J. Griffin, 5*s.* worth of bee-appliances, to be chosen by the winner. Class 11.—For the best 12 lbs. of extracted honey in bottles of 1 lb. or 2 lbs. Presented by Mr. S. Fry. 1, Mr. J. Griffin, pipe in case; 2, Mr. Glasspool, pair of spill goblets. Class 12.—For the best super worked on the top of a straw skep. Presented by Rev. W. E. Medlicott. 3, Mr. Staite, smoker. Class 13.—No entry.

Open to all members of the Hants and Isle of Wight Bee-keepers' Association:—Class 15.—For the best 24 lbs. of honey, 12 lbs. in sections and 12 lbs. extracted in bottles. Presented by County Association. 1, Mr. A. Privett, silver medal; 2, Mr. E. Ainsley, bronze medal. Certificates awarded to Miss Martin and Mrs. Dumbledon for super honey, Mr. Staite, for extracted honey, Mr. Fry, for honey drinks, Mr. Privett, for bee appliances, and Rev. W. Medlicott, largest display.

SOMERTON, SOMERSET.

The fifteenth annual exhibition of fruit, vegetables, and flowers, as it is now styled, which used to be the Somerton Cottagers' Horticultural Society, took place on Wednesday, August 21st, in the park at Somerton Erleigh. The day before, the large marquees had been blown away, and on the day of the show there seemed every probability of them being *washed away*, so great was the downpour of rain, and had prizes been given for umbrellas the judges would have had a large number of specimens to select from. The fruit, vegetables, and flowers, were a fine show; and the honey department, though not so well filled as the season led us to expect, presented a marked difference in the exhibits to some years ago, when the old style was the only one represented. The honey exhibited was all of good quality, and nicely staged. Two straw caps and two bell glasses of splendid build and beautiful white comb were shown, but these were quite equalled by two crates of sections of regular build and good colour; and the twelve bottles of extracted honey were as good a specimen of honey as ever was shown here, the only fault was the untidy way of fastening the paper covers down with paste or gum instead of a neat parchment cover tied with string, and a suitable label on the bottle; if this exhibit had been so treated it would have been fit to exhibit at the Royal or any other show, and would have secured attention. The following is the prize list:—

Cottagers' Class.—Super of honey: 2nd prize, J. Peddle, Somerton. Only one entry.

Amateurs' Class.—Super of honey, in glass, straw, or wood: 1st prize, H. Bennett, Long Sutton.; 2nd prize, W. Wiggett, Babcary; 3rd prize, J. Peddle, Somerton. Section super: 2nd prize, W. Wiggett, Babcary. Extracted honey (12 1 lb. bottles): W. Wiggett, Babcary.

IRISH BEE-KEEPERS' ASSOCIATION.

Lectures on bee-keeping, illustrated by manipulations of bees, were given by the Association in the bee-tent at Parsonstown, in connexion with the flower show on 20th and 21st instant. Mr. J. M. Gillies kindly acted as lecturer, and was ably assisted by Mr. Rich. J. Croasdaile, J.P., District Hon. Sec. for Kings Co., and Mr. Hargraft. There were more than forty visitors to the tent on the first day, but on the second day unfavourable weather caused the attendance to be much smaller. There was also a small but select show of honey and

hives. This was under local management, but the Association awarded their illuminated certificates as prizes, and Mr. Gillies acted as judge. The exhibits were warmly praised by the judge, who remarked that they were as perfect as he had seen at any show, there being amongst them none of second-rate quality. The follow- is the prize list:—

For the best twelve 1-lb. sections: 1, George Hargraft; 2, Rich. J. Croasdaile. For the best six 2-lb. sections: 1, George Hargraft; Highly Commended, J. McNamara. For the best six 1-lb. bottles: Rich. J. Croasdaile, Rich. Stanley, equal; Highly Commended, G. Hargraft. For the best bee-hive: Messrs. Edmondson Brothers.

NEWTON-STEWART HORTICULTURAL SOCIETY.

This Society held their Annual Show of flowers, fruit, vegetables, &c., on Friday last in the McMillan Hall, Newton-Stewart; and notwithstanding the almost continuous rain experienced during the past fortnight many of the exhibits put forward were of a meritorious character; especially was this noticeable in the fruit and vegetable classes. During the day the show was well patronised by the public. Amongst the new features was the introduction of classes for honey, and these were fully taken advantage of by the local bee-masters and others from the adjoining district; and considering this is the first show it is encouraging to know that about 6 cwt. was staged for competition, and many of the samples were extremely good. Of these we would especially mention the beautiful display of Mr. David Rae, consisting of section and run honey very neatly arranged on a triangle staging especially made for the purpose, and was deservedly awarded the special prize of 15*s.*, offered by Mr. William McNally, Glenluce. The same gentleman was also awarded first prize for a neatly finished bell-glass of heather honey, over 12 lbs. in the class for 1-lb. sections. Mr. Innes, editor of the *Galloway Gazette*, secures first honours with a nice lot, well finished, but a little dark in colour: The other classes are well competed, and the run honey especially excellent. The judges were the Rev. J. B. Robertson, Leswalt, Stranraer, and Mr. J. D. McNally, Springburn, Glasgow, whose awards gave entire satisfaction. The following are the awards:—

Best display of honey and honeycomb: First and special—Mr. David Rae, Newton-Stewart. Best sample of run or extracted honey, not less than 3 lbs.: First—A. Muir, Longcastle; Second—W. Muir, Longcastle. Best globe of honey: First—David Rae. Best super over 10 lbs.: First—W. Hogg, Castle Douglas; Second—M. E. Heron Maxwell. Best super over 6 lbs.: First—W. Hogg; Second—David Rae. Best six sections of honey 1 lb. each: First—R. Innes, Cartridge Cottage, Newton-Stewart; Second—David Rae.

GOOLE AND DISTRICT BEE-KEEPERS' ASSOCIATION.

The first show of this Association was held on Saturday, August 17th, in Mr. W. Chester's apiary, Goole. The afternoon was delightfully fine, which rendered the show very attractive, and brought together a very respectable gathering to hear the lectures delivered by Mr. Grimshaw, and to witness the manipulation in the bee tent of the Y.B.K.A. by various members of the Association.

Mr. Grimshaw, in his opening remarks, briefly sketched the history of the frame-hive stating that an American, a Hungarian, and an Englishman were competitors for the honour of having first invented the movable comb hive. The lecturer then pointed out the advantages the modern hives and scientific bee-keeping had over the old straw skep, and the old method of bee-keeping, and explaining how the nectar which was gathered from the various blossoms was stored in the hives by these industrious insects, there transformed into honey, which was extracted from the combs without contaminating the honey with the impurities of the hive, and after being strained, was offered to the consumer without once being touched by the hand. He then explained how bees could be subdued by the aid of smoke, and thus handled by the manipulator with little fear of being stung.

Mr. Grimshaw next proceeded to judge the exhibits of honey, which, he afterwards stated in a short address had been a difficult task, there being so many fine samples so nearly alike, but hoped his awards would give satisfaction to all: to which we may add they did, as no one was heard to complain, not even the unsuccessful exhibitors, and he could assure those present that he would not forget what he had seen that afternoon, as the exhibits were a credit to the Association.

Mr. Cawthorn, in proposing a vote of thanks to the lecturer, said that Mr. Grimshaw was a perfect stranger to him, but he could not let the opportunity pass without thanking him for his instructive lecture, and also for the trouble he had taken to come and act as judge; and although not a bee-keeper himself he could not fail to see the great advantage of scientific bee-keeping by which honey of far better quality, and consequently more fit for human food, was obtained.

Mr. Cobb briefly seconded the motion, which was carried by acclamation.

Mr. Grimshaw, in reply, said it had not been a trouble but rather a pleasure to come and assist this Association, and advised the members to go on in the way they had begun and make a name for themselves.

A straw skep was then driven by Mr. Chester, Mr. Grimshaw explaining the operation to the audience.

The following is the list of awards:—

Class 1. *For the Best 6 lbs. of Comb Honey in Sections* (four entries, three staged).—1st, A. Woodhead, Goole; 2nd, W. Chester, Goole.

Class 2. *For the Best 6 lbs. of Extracted Honey in Glass Jars* (eleven entries, all staged).—1st, J. Speak, Creyke's Siding, Raweliffe; 2nd, A. Woodhead; Commended, W. Aaron, Goole.

Class 3. *For the Best 6 lbs. of Heather Honey in Sections.*—No entries.

Class 4. *For the Best Straw Skep of Honey from which the Bees have been driven, not killed* (three entries).—1st, J. Cobb, Thorne Moor Ends, Thorne; 2nd, E. Wainman, Saltmarsh Crossing, Howden.

Class 5. *For manipulating a Frame Hive in the most skilful Manner.*—1st, G. Roberts, Goole; 2nd, W. Aaron, Goole. In this class there were four entries, but only three competed.

GLOUCESTERSHIRE BEE-KEEPERS' ASSOCIATION.

Wotton-under-Edge District.

A most successful show of bees, hives, and honey was held at Wotton-under-Edge on Tuesday, August 20th, in connexion with the Wotton-under-Edge Horticultural Society. Although the weather was not what one would wish on such a day, there was a large number of people who visited the show; there was also a greater number of people visited the bee tent than there was last year. This being the second year of a bee and honey show the committee and members are to be congratulated on their success. About 684 lbs. of honey were exhibited, the whole of it, with the exception of 48 lbs., being gathered in the district. The bee tent of the Bristol B.K.A. was in attendance. Mr. Davenport, of Stourport, very ably officiated in the tent. The judges were Mr. Davenport and Mr. Appleton, of Bristol. Below is list of prize-winners:—

Open Classes.—Class 1. For the largest and best exhibition of honey in any form—First prize, silver

medal, Mr. W. Griffin; second prize, 5*s.*, Mr. A. J. Brown. Class 2. The best 12 1-lb. sections—First prize, 6*s.*, Mr. W. Griffin; second prize, 4*s.*, Mr. Frederick B. Burtt. Class 3. The best 12 1-lb. bottles of extracted honey—First prize, 6*s.*, Mr. G. Gunston; second prize, 4*s.*, Miss North and Mr. G. Venn, equal. Class 4. The best super of honey, not sectional—No entry. Class 5. The best sample of bees'wax—First prize, 2*s.* 6*d.* and certificate, Mr. Griffin; second prize, 2*s.*, Mr. J. Fowler. Class 6. The best observatory hive stocked with bees, First prize, 5*s.* and Certificate, Mr. H. Owen; second prize, 3*s.*, Mr. A. J. Brown.

Cottagers' Classes.—Class 7. The largest and best exhibition of honey in any form—First prize, silver medal, Mr. G. Gunston. Class 8. The best 12 1-lb. sections—First prize, 5*s.*, Mr. W. Perkins; second prize, 3*s.*, Mr. W. Griffin; third prize, 2*s.*, Mr. C. Jellings. Class 9. The best 12 1-lb. bottles of honey—First prize, 5*s.*, Mr. G. Gunston; second prize, 3*s.*, Mr. G. Venn; third prize, 2*s.*, Mr. W. Griffin. Class 10. No entry. Class 11. The best bar-frame hive made by a cottager—First prize, bronze medal, Mr. W. Griffin; second prize, 3*s.*, and certificate, Mr. A. J. Brown. Class 12. The largest number of queen-wasps and nests—First prize, 3*s.*, Mr. J. Lickfold: second prize, 2*s.*, Mr. W. Teagle; third prize, 1*s.*, Mr. A. J. Brown.

Stung to Death by Bees.—An elderly farm labourer, named John Lovegrove, living at Welford, near Newbury, has died through being severely stung by bees. He was in his garden, raising his hive preparatory to taking the honey, when the bees attacked him in an extraordinary manner, and he received hundreds of stings on his head, face, and hands. A married daughter who went to help him was also seriously stung. A labourer named Tucker, who had run to their assistance, was also attacked, and had to retreat, but having obtained a veil, returned and rescued the daughter, and carried Lovegrove indoors. Lovegrove, who was a victim to the stings of the bee, for nearly an hour was attended by a medical man, but he was so seriously injured that death ensued. At the inquest, held by Mr. Coroner Pinnegar, a verdict of accidental death was returned. The coroner complimented Tucker upon his conduct in coming to the rescue of the deceased and his daughter. Lovegrove had been skilled in bee-management, but had become partially paralysed.

Claim for a Swarm of Bees.—Samuel Lechfield, Heage, sought to recover 15*s.* from Joseph Beeton, for the wrongful detention of a swarm or hive of bees. His Honour was satisfied that the bees had been followed from the time of the swarm to where they alighted in the defendant's garden, and ordered that the money should be paid in a week.

Humble Bees, and the Nectar of the Passion-flower.—We regret extremely to announce that some honest humble-bees of our acquaintance have taken to drinking, and to such excess that they are daily found reeling and tumbling about the door of their houses of call—the blossoms of the Passion-flower, which flow over with intoxicating beverage; and there, not content with drinking like decent bees, they plunge their great hairy heads into the beautiful goblet that nature has formed in such plants, thrusting each other aside, or climbing over each other's shoulders, till the flowers bend beneath their weight. After a time they become so stupid that it is in vain to pull them by the skirts, and advise them to go home instead of wasting their time in tippling; they are, however, good-natured in their cups, and show no resentment at being disturbed; on the contrary, they cling to their wine goblet, and crawl back to it as fast as they are pulled away, unless, indeed, they fairly lose their legs and tumble down, in which case they lie sprawling on the ground.—*Gardener's Chronicle.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

SUSSEX OLD WORLD BEE LORE.

[We print Mr. Sam. Goodheeve's communication as received *verbatim et literatim.*—Ed.]

To the Edditor:

[2274.] Honrd Sir,—Mr. Rusbridge wot lives in these 'ere parts hev' bin an' axed me if I would rite yew an artikle for t' *Bee Jernal* 'bout my stile o' tratement when t' bees all dies o' starvashun in t' winter, and 'ow, under my sistem, they all kums tew life agen in t' most naateral manner in t' coorse o' t' follerin' summer; and, sez 'ee, 'I b'leeve, Mr. Goodheeve, that yew air a fare representative' (this is a long word, an' I hev copyed it letter at a toime from t' dixionary) 'o' t' old skool o' bee-keepers, and as sich, your ideers showld find a place in prent. I will 'rite to t' Edditor mysel,' sez 'ee, 'to insewer' [insure?] 't' insershun on 't.'

Now, Honrd Sir, when I 'member'd 'ow 'ee 'rote in 'ees book 'bout my littel misshap wi' t' bees at t' squoire's sum few 'ears agoo, I felt a bit upset loike, so I replyes, 'No,' sez I; 'I doant want yer to 'rite to t' Edditor on my 'count. I'll 'rite mysel', and if 'ee thinks it 'll be wuth prentin', 'ee'll prent it; but if 'ee thinks it aint 'ee wun't, and that's it and all 'bout it. And when 'ee offer'd tu k'rect it arter I 'rote it, I sez 'No! I doant want enny 'elp, I'll send it strate tu t' *Bee Jernal.*'

Fact is, I wish 'ee had'nt 'rote 'bout me in 'ees book. I'd a bin a littel moor pertic'lar what I sed at t' toime if I'd a 'now'd 'ee was a goin' to prent it arterwards. T' squoire 'ee was upset, too, at t' toime, and sez 'ee, 'Sam, I am 'xcessively 'noyed. I hev' a grate mind to stop 'ees leaf up t' brooks a snipe shootin' in winter;' but t' squoire's lady, she was a stan'in' by, and she sez, 'No, deer, don't do that; we air not menshioned by name, so it duz not matter;' and then she sez, 'I never thowt o' seein' it in prent tho'.'

I find from 'xperience it doant do t' be too open in talkin' to a book 'riter. Well, 'ee hev' sartinly 'rote 'bout me, and now I'll 'rite 'bout 'ee. Wun good tarn desarves another.

Now, sir, yew may say what ye loike 'bout it, but it is main sartin that when a heeve dies o' starvashun in t' winter, t' heeve,—that is to say, another gennerashun o' bees—will kum tew life agen in t' coorse o' t' follerin' summer under proper tratement, and I hev' prooved it yet wunts moor. My feyther and gran'ther afore me allus sed so, and they hev' proove it time and often, and so hev' I.

I met Mr. Rusbridge one day in t' spring o' this 'ear, and 'ee sez, 'Ow be yer bees a gettin' on, Mr. Goodheeve?' I replyed, 'I intirely forgot tu feed 'um last fall, an' they wor all de'd by 'Xmas. But they'll all kum tew life agen durin' t' summer, so it doant grately matter.' Then 'ee larfed at me, and told me I had better melt up the com's for whacks. 'No,' sed I, 'not if I noze it; t' heeves 'll be all roight when t' summer kums if I leeve 'em aloan;' and at this very minit' they be full 'o' bees and honey too. Now, if I 'ad took 'ees advice, ne'er a drop o' honey showld I hev 'ad, 'xcepting, that is, I 'ad baught sum swarms. Now, sir, kums t' p'int: when 'ee foun' that I meant to let t' heeves

stay on the stands, 'ee wanted to buy t' com's, but I wouldn't sell 'em. No, not I. I noze better. Sez 'ee, 'Yer empty com's will prob'ly 'tract my swarms durin' summer.'

'Not a bit of it,' sez I. 'Well, then,' sez 'ee, 'I'll give 'ee 'arf a crown a-piece for the com's in each, and yew can keep t' heeves.'

I very well 'no 'ee doant want t' heeves, for 'ee uses t' new-fangled barframe heeves, which I can't abear t' site on. I thow't it ver' likely 'ee wanted t' com's to fit into 'ees frames to let t' bees 'atch owt in the naateral manner, and so get a lot o' bees for next tu nothin'; but Phil Hackles, who 'olds the same 'pinion 'bout bees as I do, sez 'ee bl'eeves 'ee wanted t' com's to cut up and fit into 'ees wun poun' seckshuns to send to a grate bee-man in Lunnnn. 'Ee duz send a lot thair I 'no', for I seed 'um a packin' 'im up when I was thair t' other day.

I hev' bin a close obsarver o' natur' all my life, and I hev kum tew this ere konclusion: If yer want tew suckseed in anythin' yer must foller natur' as close as possibl'. Now, a straw heeve kums naateral loike t' bees, in consekens they allus doos well in 'em, but puttin' bees into barframe heeves, an' arterwards messin' 'em 'bout with that 'ere 'tarnal *floomigator*, which they can't abear, ain't naateral at all; it's jest a fare way t' spile 'em for workin', and no mistake. If yer wants bees tew git on well, leeve 'em aloan. I don't go anear mine sumtimes for months together, and they be all t' better for't.

My 3 heeves stood all rite on thair stands all thro' last winter, and they wintered uncommon well, too, 'xceptin' wun, which blowed over, and capsised into the ditch, hackle and all. The ditch bein' full o' water at t' toime, this ere heeve got reg'lar soked threw an' threw, but we dride it by t' kitchen fire, and soon got it t' roights, and set it up in t' gearden agen. T' queen's eggs which was layed in the sells in t' autumn was all rite I s'pose, for this 'ere heeve has done better this summer than either o' t'others. In coorse I wunt go so far as to rekummend this stile o' tratement for gineral 'dopshun, and I got seri's dowts whether it is all the rite thing tew do to wet a heeve in winter, but be this as it may, this pertikler heeve 'as dun best o' the 3. It is a 'xcepshunal instans' I 'xpect. Phil Hackles, 'ee wor a lookin' at it last evenin', an' 'ee sez it can't way less than 50 poun's. That's w'at I calls prackticaI 'xperience!

(*To be continued.*)

CARNIOLAN BEES.

[2275.] I did not see the *B.B.J.* of August 8th until last week; consequently these few remarks to 'A Young Bee-keeper' (No. 2261) have been delayed a week. I have just re-read the report referred to (2241), which I hurriedly wrote, and I find that I did not say quite all I might or ought to have said. Our hives hold sixteen standard frames, which run parallel to the entrance, there being room above for one height of sections. We wintered the Carniolans on six bars, so that there was space left for ten bars more. Knowing their propensity for swarming, we kept them with three bars in extent of their requirements until the hives were full. That being so, and not wanting to work them in sections (owing to the cappings not being sufficiently strong), we saw no other course open to us but the one previously described. I am greatly obliged to 'Young Bee-keeper,' however, for the advice he has so kindly given; and as we have had so much swarming this season, I trust we shall have some good Carniolan stocks next, which shall have a good trial, and we will try to profit by the advice received.

I notice he ('Young Bee-keeper') advises the use of sections. I should like to know whether he has taken any from Carniolans this year, and if so, I should be glad if he will say whether the cappings are strong and white? I may here remark that we are away the greater part of our time, and only see the bees at week ends; consequently we cannot give them that attention which is so necessary to the best results.—Moore & Tonge, *Aug. 19th.*

REMOVAL OF POLLEN FORM THE LEGS OF BEES.

[2276.] When visiting the apiarian exhibition now open at Melrose on Thursday, 1st August, I was very much interested watching the conduct of the bees in the four observatory hives at the far end of the building, but as my time in Melrose was limited to a few hours, divided between the bees and their appliances and the Highland Society's show, I could not continue my observations long enough to get an answer to the question I will put at the end of this note.

The day was bright and warm, just such as bees and their masters love. It seemed a busy time with them. I observed that several of them, with the pellets of farina on their limbs, after turning themselves round once or twice, stopped, and moved the lower part of their body and limbs with the pellets on them for a few seconds, and repeated this process as long as I continued looking at them. After remaining in the driving tent, seeing that process carried on, and hearing a very interesting and instructive lecture by Mr. Howard on some of the habits of bees, I returned to the exhibition building to see how the bees in the observatory hives were getting on, and I found the bees with the farina on their limbs as busy as ever, shaking themselves over the open cells, with only this difference, that the pellets were becoming less in size. It was on frames where there were brood that this took place. On the frames where honey was being stored the work went on more quietly.

Can you, or any of your readers, inform me if it is by the above mechanical process that the pollen is removed from the limbs of the bees?

I feel grateful to Mr. T. Gibson Carmichael for getting together such a very interesting exhibition.—R. Y., *The Lawn, Biggar.*

[*The British Bee Journal* for May 1876 very graphically describes the mode adopted by the bee to get rid of its load of pollen: 'The pollen-laden bee upon entering the hive makes directly for the brood-nest, and where its load is required, it quickly disencumbers itself. Sometimes the nurse-bees are in want of the all-necessary pollen, and nibble it from the legs of the worker without ceremony, but more often the bee goes to a cell devoted to pollen-storing, and hangs by its first pair of legs to another cell immediately above, and by the aid of its middle pair of legs it unloads its hindmost, and (as it were) kicks the balls of pollen into the proper receptacle. Here they are mixed with a little honey and kneaded into a stiff paste, which is then rammed hard against the bottom of the cell, for future use, the bee using its head as a battering-ram; and these operations are repeated until the cell is almost filled with the kneaded dough, when a little clear honey is placed on the top, and it is sealed over and preserved as bee-bread. If a cell-full of pollen be cut in two, longitudinally, its contents will, as a rule, be found of many colours, stratified, the strata of varied thicknesses standing on edge, as if the bees, instead of storing bread, had stored pancakes.'—Ed.]

INDUSTRIOUS WORKERS.

[2277.] I have only just seen my friend Mr. Kempe's contribution in the number of August 2nd, under the above heading. The return he has had from the *tria juncta in uno* appears so 'prodigious,' as from one hive, that I think many would be glad of particulars. On June 19th he put the lot upon nine large frames, in a few days he

placed on his supers, and 'yesterday' he removed 81 lbs. of super honey, leaving 50 or 60 lbs. in the body hive.

Now, as Mr. Kempe does not date his report, we do not know when 'yesterday' was, but the work was done within a month. Of what size were the frames? Lee's ancient ones, $14\frac{1}{2}'' \times 9''$ within, diminishing downward, would, if quite filled, probably weigh 6 lbs. each, and six times nine being fifty-four, we get the weight (50 or 60 lbs.) of honey in the body hive. But the poor young queen would not have a single cell to lay in, and time alone, and future treatment will show whether or not it is a case of 'penny wise and pound foolish,' their being 'left to take care of themselves.' Of course, if the hive was a long Combination one, and some of the frames were spaced for honey only, the case would be somewhat different. We must presume the frames were supplied with empty combs, not foundation. Secondly, what were the supers, and were they sectional, and were four cases of twenty-one, each put on together? Whatever they were, they seem all to have been placed on at one time, and removed at one time. Or was the hive tiered, or was a large straw cap put on, or how was it managed? I don't know why a swarm should not work more vigorously than a stock. After all, they are but the bees of the stock in a new house which they may take special interest in furnishing and storing; and in a rattling season results *are* startling. I remember, some four or five years ago, a first-of-June swarm yielding me, besides its stores, some 40 lbs. at least, and as two and two in a manner make five with bees, Mr. Kempe's united lot might well accumulate the quantity mentioned.—C. R. S., *S. Goran, Cornwall, August 12th.*

TWO QUEENS IN A HIVE.

[2278.] On the second of August I opened a hive of blacks to remove the old queen and introduce a young Carniolan queen. I found a queen and destroyed her, I caged the Carniolan queen over the feed-hole, but did not further examine the hive. On the 5th inst.—I could not before—at dark I went to liberate the queen, and found her dead, but as I had neglected to feed her (I have made cages which admitted of feeding) I concluded the bees had allowed her to pine—they will generally feed, although they do not accept a queen. On the 8th I again opened the hive to remove queen-cells before giving them another queen. I found that the drones had been killed since the 2nd, and another fertile queen on the combs with eggs in the cells, proving that the hive must have contained two queens at the same time. I have had great loss of young queens this year, nearly all second swarms have lost them. In one case I have reason to think the bees themselves destroyed her, as I found the hive in great excitement at evening, and the queen lying in front, with bees around her, nearly dead. Thinking she might be chilled I took her to the warmth, and expected to see her revive, but she died immediately, evidently having been stung. The bees were Carniolans. —ALPHA.

TIERING-UP AN ANCIENT PRACTICE.

[2279.] The following extract from Evelyn's *Diary*, Vol. I., page 292, shows that tiering-up or sections are not a modern discovery:—'July 13th, 1654.—We all dined at that most obliging and universally curious Dr. Wilkins at Wadham College. He was the first who showed me the transparent apiaries, which he had built like castles and palaces, and so ordered them one upon another as to take the honey without destroying the bees.'

In the next page, 294, there is an odd statement:—'After dinner they went to bowls, and in the meantime our coachmen were made so drunk that in returning home *we escaped great dangers.*'—B.

WASP'S NEST IN FRAME-HIVE.

[2280.] The appearance of the nest this week points strongly to the fact that these reports will soon cease. There is no alteration in the nest except that a small spider during the week has been exceedingly busy. It has spun its web about the upper part of the nest, which fact shows the number of wasps to be remarkably small. —C. C. MOORE, *Altrincham, August 26th.*

Echoes from the Hives.

Somerton, August 26th.—It may interest you to again hear from me; I have occasionally sent you a line in former years, and as I then stated, while appreciating the *B.B.J.* as a valuable paper for bee-keepers, I found its price was too high for me and most others here; but now it has come down to a 1*d.* weekly I have again taken it up, and am strongly advising all my neighbours to do the same. I find the old skeppists round here very ready to listen to my argument in favour of the modern treatment, and very willing that I should do anything for them in that way, but I seldom find them willing to think the matter out, and less so to invest in a cheap bar-frame hive. I have succeeded in placing a quantity of *Modern Bee-keeping* in our district, and these are slowly but surely working them round; and by-the-bye, if another edition is to be issued, I hope it will contain more about the modern management of skeps, as this will be an extra inducement to skeppists to read the book. There are now at least eighteen to twenty modern bee-keepers in this neighbourhood. I have now begun to use the carbolised cloth, and like it very well, but I think I sometimes make the solution—ordinary carbolic and glycerine with hot water—rather strong, as my hands seem cramped and numbed for an hour or so after operating with it. Last season was a poor one for me, as from two hives I only took about 3 lbs. in sections, and just after adding a hive below full of combs and foundation the honey flow ceased, and they did not take possession until this year. This year I have had from the two hives thirty-five sections of 1 lb. and 64 lbs. extracted without touching the body-box, which I intend to leave for winter. Although queen-wasps were scarce in the spring the nests are numerous now, and I have four or five to destroy as soon as I can find time. I have sold nearly all my honey to private customers at 1*s.* each section, and 1*s.* per lb. extracted, and found no difficulty by doing it up neatly; and in 1 and 2-lb. bottles they take it freely at this price, and I only sell at less in case of one party taking 4 or 6 lbs. at once in one large bottle, when I get 10*d.* or 11*d.* per lb. Of course I call on them and let them see the colour and quality of my goods. I hope now the *Journal* has come down to our price that it will rapidly increase the circulation.—J. I. S.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

W. H. HUGHES.—*Killing Drones.*—Bees as a rule do not kill the drones, but simply drive them from the combs to perish, either outside, or, as in your case—the drones having access to it—the back of the hive. If you lift up a skep one evening when the bees are turning out the drones, you will find them in a heap on the floor-board, where they have been driven by the bees from the combs. The excluder in your hive prevented the bees from removing the dead bodies.

R. D. STRAIN.—1. *Carniolan Queen.*—See advertising columns. You ought to introduce at once.—2. *Transferring.*—Do so at once, it is almost too late. Feed

freely after transferring. 3. *Best Extractor.*—See advertising columns.

J. SWAMLEY.—*Feeding.*—The syrup will do if it has not turned sour. On no account feed in the open, as even if you do not start robbing in the apiary, you will feed your neighbours' bees as well as your own. Use a feeder, which can be bought at any appliance-dealer.

R. AULD.—*Removing Bees.*—They can be removed with safety any short distance after they have been confined to their hive for not less than six weeks by winter weather.

SUBSCRIBER.—1. *Manuals on Bee-keeping.*—Cowan's *Bee-keeper's Guide*, Webster's *Book of Bee-keeping.* 2. *Number of Frames for Colony to be made up of Condemned Bees.*—Six frames of comb. 3. *Weight of bees.*—Five pounds. 4. *Syrup for Feeding.*—See recipes in above manuals.

BUSY BEE.—*Ventilators.*—We only use one such hole in each end of cover, and find that amply sufficient.

R. H.—*Red Mildew in Hives.*—This arises, like other descriptions of mildew, from dampness. Remove the cause, the effect will disappear.

CLUTHA.—1. *Inverting Skep.*—This ought to have been done before a swarm had issued. 2. *Unfinished Sections.*—This is not the bees' fault. It is owing to the cessation of the honey flow. 3. *Number of Frames to Winter a Stock on.*—Not less than six, and these should be well stored. We much prefer leaving them their full number (ten), though eight is a very comfortable size for a populous colony to winter in.—4. *Bees emptying Rack of Sections.*—See answer 'Unfinished Sections.'

APIARIST.—1. *Swarm in July.*—If we wished to increase our stocks we should not object to a swarm even in August providing there were plenty of drones flying. 2. *On how many Frames should a Three-frame Nucleus be Wintered?*—Why, on three frames of course. It is a very unsatisfactory process; cannot you add some driven bees, and so, by feeding up, make it into a stock now? 3. *Best shaped Tins for Conveyance of Honey by Rail.*—We should prefer a square tin with outside casing of wood. We do not know where you can purchase them in England, but such tins are used for the conveyance of petroleum to Natal and the Cape, also in America.

T. E. G.—*Moving Bees.*—On no account move the bees at this season, but wait until they have been confined to their hives at least six weeks by winter weather.

MIDDLESEX.—*Wintering Bees.*—Unfinished combs should be removed, also empty ones. A strong stock ought to be wintered on not less than 20 lbs. of stores; 25 lbs. would be better.

QUEENLESS COLONY.—You no doubt have a fertile worker in the hive. Your best plan is to spray the bees with thin scented syrup, and unite with another colony sprayed with the same. You could obtain a few pounds, say four, of driven bees with queen and unite these, first shaking the queenless lot from their combs several yards away from hive.

F. GOODRICH.—*Creepers and Climbers for Arches.*—The best creepers for the purpose you mention would be Cotoneaster microphylla, C. Simmondsii, Clematis vitalba, Pyrus japonica, Escallonia macrantha, Cratægus pyracantha, and ivies of the green-leaved section; eschew the variegated forms. Humulus japonicus and Eccremocarpus scaber may be employed for effect only.

A. W. H. and HOLBROOK.—The honey-producing heather is *Calluna vulgaris*, which is very different from that forwarded by you. But the heath sent is generally visited by the bees.

M. H.—*Bees in Top Storey.*—Unless we have a spell of fine warm weather we should leave them as they are; in the meantime feed them up well. Should a suitable day occur you could soon rearrange the combs. We have known bees winter well in the upper storey. All unsealed stores should be removed before packing the bees into winter quarters. Can you not extract the unsealed honey you mention? If you stow the top box away as it is you will most likely find the honey candied in the spring, and possibly useless.

R. J. G.—We should hesitate to give this double dose to our bees. Prescriptions taken singly are sometimes good, but if two are mixed decidedly nasty.

ANXIOUS ONE.—*Suspicious Comb.*—Destroy these combs at once; the piece sent is in a most deplorable condition with foul brood and mildew. We cannot understand where you can have stored the comb to get it in such a bad condition. Do your hives stand in a very damp place, with no fresh air?

T. D. SCHOFIELD.—*Sections.*—When exhibited they should certainly have both sides exposed to view, whether in a glass case singly or in quantity. Mr. Lee, at Messrs. Neighbour's, might assist you as to your other question.

Mr. C. Atkinson, of Tockwith, near York, writes:—'In your interesting report of the Yorkshire Show I find that no mention is made of my having won the first prize for twelve sections, and the second prize for eighteen tions as well as the first, for extracted honey, as reported.'

SHOWS TO COME.

NOTTS ASSOCIATION.

Sept. 5.—Greasley and Selston.

Hon. Sec., A. G. PUGH, *Mona Street, Beeston.*

NOTICE.

THE SIMMINS' BEE COMPANY, Limited.

'In LIQUIDATION.'

THE Shareholders of the above Company having obtained an order from the High Court in Chancery, for the removal of Mr. W. M. GRAHAM as Liquidator to the above Company, an order was obtained from the above Court, with the approval of the Shareholders, for the appointment of Mr. F. G. CLARK of Brighton, Chartered Accountant, to be the Liquidator to the above Company.

All communications to be addressed,

F. G. CLARK, *Chartered Accountant*,
Post Office Chambers,
SHIP STREET, BRIGHTON.

SIMMINS' BEE COMP^{Y}, LTD.

'In LIQUIDATION.'

The Queen Rearing and Honey Producing Apiaries.

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BALSDEAN.—Consisting of the covered Apiary, 75 ft. by 5 ft., with Hives, Appliances, and Stock in Trade.

ROTTINGDEAN.—Consisting of Workshops, Extracting Comb and Store Rooms, with a large quantity of Timber, Hives in the flat and made up, Queen-rearing and other Appliances, with Stock in Trade and the Goodwill of this excellent concern.

This offers an opportunity, rarely to be met with in England, for an energetic man, who is a qualified Bee-keeper, with a small capital.

For full particulars apply Mr. F. G. CLARK, Liquidator to the above Company, Chartered Accountant, Post Office Chambers, SHIP STREET, BRIGHTON.

Special Prepaid Advertisements.

Exchange Column.—Sales of Honey and Second-hand Goods.—Intended to aid Bee-keepers in the disposal of Bee-produce and Appliances for which they have no further use. Terms: Twelve words and under, Fourpence; for every additional Three words, One Penny extra.

HOOKER'S GUIDE TO SUCCESSFUL BEE-KEEPING. Price 9*d.*
JOHN HUCKLE, Kings Langley, Herts.

BEE-KEEPING, Plain and Practical: How to Make it Pay. By A. RUSBRIDGE, 1*s.* 6*d.*, post free, 1*s.* 8*d.* Address J. HUCKLE, Kings Langley, Herts. A 1253

WANTED.—Copies of *British Bee Journal* for January 7th, 1886, and Nov. 1873. Full price given.

WANTED.—Copies of the first Nos. of *The British Bee-keepers' Adviser.* Full price given.
JOHN HUCKLE, Kings Langley, Herts.

PURE CARNIOLANS (Autumn Prices). Guaranteed healthy Six-frame Stocks, 18*s.* 6*d.* Hive-frame Nuclei, 12*s.* A few Carniolan Hybrid Queens, 3*s.* 6*d.* each. All Queens reared this Season. Address FRANK REED, Stonereigh Apiaries, Portslade, Brighton. (220)

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HONEY SECTIONS of best quality purchased for Cash. Address T. SMITH & Co., Cambridge Street, W. E 86

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WANTED, first quality Section Honeycomb (1-lb.) Also New Run Honey in bulk. Any quantity, Terms cash. Address Mr. E. HURST, Bexhill, Sussex.

OBSERVATORY HIVE, 8 Frames and a Super; Bees very strong; Hive full of Honey; £2. Address F. BRAMWELL, 73 Church Street, Preston. F 12

FOR IMMEDIATE SALE.—Strong healthy Stocks of Bees in Makeshift Hives, on rail. Cash offers wanted. Address ELLIOTT, Taunton. F 18

TRIAL CABBAGE PLANTS.—Score each of Ellam's Early, Sutton's Imperial, Dickson's First and Best, Carter's Heartwell, Webb's Emperor, Queen's No. 1. Warranted true. Seed sown July 20. 1*s.* 6*d.* free. Address HEARTWELL, Clun, Salop. F 20

BEES! Splendid Stocks for Sale, in strong Bar-frame Hives; well provisioned for winter, at 20*s.* and 25*s.* each. Must be sold at once. Apply CHAS. HOWES, The Apiary, Cottingham, Hull. F 25

STOCK OF BEES, fed up for Winter in Bar-frame. Cheap. CHILDE, Semington, Trowbridge. F 26

TWO STRONG STOCKS OF BEES, in Bar-framed Hives. £1 5*s.* each, or £2 for both. H. T. BLAND, 13 West Avenue, Derby. F 27

FOR SALE.—Strong Stocks in Abbott's Hives, eight and ten frames. Price 25*s.* to 35*s.* Address Miss R. SPARROW, Preen Manor, Shrewsbury. F 28

WANTED.—Driven Bees, in 4-lb. lots, with price, packed on rail to J. GIBBINSON, Shotley Bridge, co. Durham. F 29

DRIVEN BEES, with Queens, 1*s.* 6*d.* per lb., packing free. Young Queens, 1*s.* 3*d.* Carriage paid. HOLDER, Wimborne.

BEES, on Standard Bars with metal ends, and young Queen, 2*s.* per Bar. Box 1*s.* 6*d.*, returnable. HOLDER, Wimborne, Dorset. F 30

FOR SALE.—Two Stocks English Bees in Standard Bar-framed Hives, complete, 25*s.* each. Also Two Combination Hives, with Section Cases complete, cheap. W. J. RUTTER, Willington, Durham. F 31

HONEY FOR SALE, in Bulk, Bottle, and Sections. Two first and one second prize, Yorkshire Show. C. ATKINSON, Tockwith, York. F 32

DRIVEN BEES at 1*s.* 6*d.* per lb. and their Queen (extra Queens 1*s.* 6*d.* each). E. GARNER, Broom, near Biggleswade. F 33

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PANSY CUTTINGS.—Good varieties 1*s.* per dozen. Also 'Little Wonder' Extractor, only once used, 5*s.* 6*d.* W. MORSS, Mytton Lodge, Whalley, Lancashire. F 35

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Carniolans are exceedingly gentle, excel all other Bees in wintering in cold climates, and **equal as honey gatherers any race native to Europe.**

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THE
BRITISH BEE JOURNAL

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Editorial, Notices, &c.

EXTRACTING HONEY—STORAGE OF EMPTY COMBS.

One of the first questions that ought to occur to the mind of the bee-keeper is, 'In what form will it pay me best to offer my honey for sale?' We notice that extracted honey is rapidly growing into premier position in the market, and we must allow that a good sample of extracted white clover or sainfoin honey, allowed to granulate until it is almost as hard as cheese, is to our taste far superior to honey in the comb, though we much prefer sectional honey to that freshly extracted. Although we have only expressed our individual taste in the matter, our experience points to the fact that the same coincides with the majority of honey-consumers in this country. What is nicer on a cold winter's morning than a good-sized 'lump' of pure white extracted honey on the plate at breakfast? It seems to clear the throat from all irritation, and soothes that parched feeling which we all know betokens an attack more or less severe of influenza. A piece of same about the size of a cube of sugar, placed in the mouth before going to bed, will usually stop the irritating winter cough which so many of us poor mortals are troubled with when winter's fogs hang about the country with such persistency. Then, again, at tea how nice it is to be able to *cut* the honey into pieces without the chance of any sticky drops falling on the cloth or smearing the spoon-handles and little mouths into which it is placed—We have a family. The flavour is very perceptibly increased after granulation has taken place, which is a very great point in its favour, and its safe transmission in a granulated condition by post or otherwise is perfectly ensured. No wonder, then, after all these advantages, that it is now beginning to occupy the first rank as a marketable production of the apiarist. We have always looked upon the production of extracted honey as the work of the busy apiarist, and section production as that of his more easy-going brother in the craft, not that either can be successfully carried out by the idle or inenergetic man.

We have in a former number given directions as to the best method of removing sectional supers from the hives; it will now be our aim to treat, in the same simple manner, the extracting of honey from frame-supers after removal, as the previous instructions as to the removal of sectional supers apply in an equal manner to the removal of frame-supers. The use of shallow-frame as against that of standard-frame supers has received for some time past a great amount of attention from advanced apiarists, the principal argument against the use of the former being the complications that may arise from the use of two sized frames in the same apiary; but as to the possibility of any such complications arising we cannot agree, as well might we say that such would occur from the use of sections, which are but frames of a much smaller size. The honey obtained from combs kept exclusively for the storage of same is of better colour than that obtained from combs used both for brood and stores. It is now almost universally acknowledged that the handling of supers on racks is preferable to that of handling sections or frames, and our experience entirely coincides with this opinion. This being so, shallow-frame supers must come to the fore. To handle a well-stored super, say, ten standard frames, requires the exercise of an amount of strength which few bee-keepers care to exert; and to clear such a super from bees is a job which the novice will, in many cases, shrink from with feelings of dread. We have this season extracted all our honey from shallow-frame supers, and are well satisfied with the results. Not only were they much easier of removal from hive—scarcely any more trouble than the removal of a section-rack—but the uncapping of same has been performed with much greater ease and expedition than a like weight of standard combs. When removing our shallow supers from the hives we found the carbolic cloth had driven nine-tenths of the bees below into the under super, or on to the brood-combs, as the case might be, it being quite a simple affair to brush the few remaining bees off the combs before extracting with a single goose-wing feather: this will be found less irritating to the bees than either a brush or whole of a wing.

When uncapping two knives—the large flat 'Bingham' pattern—are used, one remaining in hot water until the one in use begins to drag. A clean house-flannel lays by the side of the hot water can, upon which the knife is wiped after removal from water. With the shallow frame

one draw upwards of the knife will remove three-fourths of the cappings; the other, or irregular portion of the comb, can be uncapped with the point of the knife. After being uncapped, the comb is placed in the extractor, which is turned, if without gearing, as fast and as regularly as possible —don't *jerk* the handle round. There is little fear of the combs in such shallow frames breaking, and even if a fracture does occur, it can be set right with much less trouble than with a large size frame. Having finished all the frames belonging to one super, they are to be returned to same, which—if the honey flow is not over—is to be placed under one partially filled upon a hive; or, if the honey-flow is over, on top of a hive having a corner of the quilt turned up to allow of the bees ascending and clearing the combs from the honey left adhering after extracting. After the combs have been cleared by the bees, they must be stored away until the following season. The enemy to fear while so stored is the wax-moth, which bores circuitous tunnels through the cells above the under-rib, leaving a tube of material like cobweb behind it, and into which it retreats upon the slightest alarm. In some countries this moth, or rather the larva of same, commits great ravages among stored combs; and even in this country, unless precautions are taken, it will render combs comparatively worthless.

The worst case we have ever seen came under our notice a few weeks ago. In this instance great (supposed) care had been taken to preserve the combs, they having been very carefully tied close together and then wrapped in paper; this is just what agrees with the wax-moth. The egg is laid upon the combs mostly whilst in the hive, and larva emerges after removal, so that when the combs are laid close together they form quite a paradise for the larvæ to exercise their tunnelling proclivities in. The combs were riddled in all directions, and so firmly stuck together with the cobweb material that in a few instances they were broken upon attempted separation. The moral to be drawn from the foregoing is, always to keep your combs at least an inch apart. To do this, nothing is better than to place them in their own racks and wrap the rack in brown paper to keep dust away. We always place a piece of camphor, about the size of a large walnut, in each rack, and put them in a perfectly dry cupboard. When these packages are opened, every comb is as clean and free from wax-moth as when they were put away. The above applies equally to partially filled sections, which must be extracted if there is any honey in them, and cleared by the bees before storing away.

To return to the honey which has been left in the extractor. It is removed from same and strained through some strainer cloth into some receptacle having a honey gate at the bottom, and then allowed to stand in a warm place for a couple of days. The reason of its having to be drawn through the honey gate at bottom is obvious, as all particles of comb and air-bubbles will have risen to the surface in the form of scum. The honey drawn from under this being perfectly clear and translucent. The size of packages most likely to suit the producer's market should then be decided upon, and the honey at once packed in same, as if it is placed in large receptacles for future packing it is most likely to granulate, in which case it is impossible without melting to pack it in a sightly form in other or smaller packages.

CUMBERLAND.

The Secretary of the British Bee-keepers' Association would be glad to have the address of any advanced bee-keeper residing near Kendal in Cumberland, or to hear of one who may be travelling in that district in the course of a few days.

BEE AND HONEY EXHIBITIONS AT THE EXPOSITIONS.

The following is a letter from Mr. S. B. Pratt, father of E. L. Pratt, editor of the *Queen-Breeders' Journal*, published at Marlboro, Mass. It will be read with interest because it is the impartial testimony of one who is travelling abroad for the benefit of his health, and who sees things from an American stand-point:—

The Windsor Exhibition.

'I spent one day in the great English Agricultural Exposition at Windsor, with my family. I gave much of the day to the Bee Department. It was very fine. A large building was given up wholly to an exhibition of every kind of bee-appliances. Large prizes were given for hives, smokers, honey displays, &c. There were some very fine models of large bee-farms. At a little distance there was a large tent of mosquito-netting, within which an expert operator every two hours gave a lecture to a large crowd, handling the bees and instructing as to how to do the whole business. He was very bright and well posted.

'The Baroness Burdett-Coutts took great interest in the bee-department, and the Queen herself visited the bees when the great awards were made. The boxes of honey were very fine. Some very curious work in the way of names and dates was displayed in comb filled with honey. Much credit was given to America for new suggestions. Flat sections, made in Wisconsin, have been introduced by many English apiculturists. Every leading display contained these American sections, although most of the honey shown had been stored in paste-board boxes of the same size, with glass front and back, and trimmed around the edges with fancy paper. One exhibitor had sections made wholly of glass, held in place by hoops of fine wire.

'All the honey shown seemed to be of very superior quality, every section being filled even to the corners. The honey from some localities was golden-coloured, from others very white, while some was very dark-coloured.

'Many styles of honey extractors were shown, and immense displays of extracted and granulated honey, put up most beautifully in cut-glass jars.

'The English have a great many devices for feeding bees, some of them very small, while other feeders covered the whole size of the bee-hive. Many Englishmen still cling to the old-fashioned, conical straw hives. The lecturer declared that these straw skeps were the greatest obstacles to bee-progress. Most of his exhibitions were given with straw hives. A great many bee-keepers in England still destroy the bees by sulphur, to get at the honey.

'The Carniolan queens are daily becoming more

popular in England. The black bees had the whole field to themselves. The Italians had a hard fight to gain recognition, but the Austrian bees are winning great favour. The only criticism I heard on them was by one man who declared that the capping to the cells was too thin for transportation.

'Australia has a large building devoted to bee-products. One large show-case was filled with honey in the comb, and in glass and earthenware. This honey had been brought such an immense distance that it arrived in very poor condition. It seemed to be made mostly from the bloom of the eucalyptus tree, having a very peculiar and unattractive taste.

'The Paris Exhibition.

'We have given two days to the great Paris Exposition. I found there a small display of bees from Luxembourg. These are all kept in hives about the standard American size, and covering every hive was a wooden screen, looking for all the world like green blinds of heavy slats.

'The English display of bee-products here was very good. America, also, had some large show-cases filled with the most recent inventions; but no one seemed to be in direct charge, and it looked as though these inventions had been pulled about and left in more or less disorderly confusion. The moral to be drawn from these distant contributions in both the great national exhibitions would indicate that unless these contributions are under the constant watch and guard of some friend, who will give his whole attention to their proper display, they had better not be sent.

'America has more bee-papers than any other nation, and a copy of each publication was on file here, including the *American Bee Journal*.

'Many other countries sent bee and honey displays, but the French display outranked the combined results of all other nations, and was more extensive and grand than we expected to see. Tons of honey, in the most attractive forms, were displayed. One straw super that we noticed was filled with over 150 pounds of dark-coloured honey.

'Many individual exhibitors were in attendance, and everything was done to charm and fascinate the visitors.' —S. B. Pratt (*American Bee Journal*).

Review.

Scientific Queen-rearing as Practically Applied: *being a method by which the best of Queen Bees are reared in perfect accord with Nature's ways.* By G. M. Doolittle; published by T. Newman & Son, Chicago, *U.S.A.* This is the title of a new work on queen-rearing by one of the leading bee-keepers in America. Mr. Doolittle has long been known as a writer to the American bee papers, and our readers are not altogether unfamiliar with him, for some of his articles have been occasionally reproduced for their benefit. It is quite recently that we noticed a pamphlet that he had issued on queen-rearing, and although we do not consider his plan at all simple, we have been favourably impressed with the work before us. It shows the author to be a careful observer, and as one having perseverance to overcome difficulties. We have already alluded to his method of rearing queens by making artificial queen-cells and supplying them with royal jelly and larvæ of the proper age. This is described in the book, and not only the successes, but also the failures, are mentioned, so that any one failing to succeed may know the reasons. Mr. Doolittle lays great stress upon the necessity of having good queens, and we are in perfect accord with him when he says, 'Upon no other one thing does the honey part of the apiary depend so much as it does upon the queen.' He is also of opinion that upon the queen rests to a considerable extent the cause of all their wintering troubles. He tells us that Nature's way of queen-rearing is under the swarming impulse, or when intending to supersede a queen. In the former case queen-rearing and swarming are only done during the period when honey and pollen are being gathered from the fields. At such times bees get strong in numbers, and embryo queen-cells are started in which the queen lays eggs. He does not find that the larvæ are fed more plentifully during the first thirty-six hours of their existence than the larvæ in worker-cells, but after this they are fed more liberally, and actually float in the food for the rest of their growth. All their occupations are carried on leisurely, as the queen is still in the hive, and there is no hurrying to replace a loss, thereby using old larvæ or scantily feeding them.

Besides this, the 'swarming-plan,' there is the other of 'nature's ways.' In this the queen is reared, and commences to lay often before the old queen begins to decline or is superseded. From all his experience he is led to conclude that 999 queens out of every 1000 reared, where man does not interfere with the bees, are reared by one of these two plans.

Chapters 5 and 6 are devoted to the older methods of queen-rearing and his experiments, but the essence of the book is contained in chapter 7, where the new way of rearing the queens is described. We cannot, however, agree to call it in accord with 'nature's way,' as our author is pleased to term it, for nothing could be more artificial from the making of the queen-cups to the hatching them out on sticks.

One valuable feature is the fact that if the brood-nest is divided by a queen-excluder the bees will at once commence to rear a queen from the brood in the part to which the queen has no access. Mr. Doolittle takes advantage of this fact in rearing queens, but says if the young queen gets to the old one this would be at once killed, so that certain precautions have to be taken. The whole chapter is well worth study, and some valuable hints may be picked up even if the bee-keeper does not intend to carry out the plan entirely.

In subsequent chapters instructions are given what to do with the cells, how to form nuclei and multiply them. A chapter is devoted to the method of securing good drones, and another to the introduction of queens, both fertilised and virgin. The book is full of practical points, details a number of experiments, and is well worthy of careful study. It contains 163 pages, and is well printed and illustrated.

ASSOCIATIONS.

SEVENOAKS HORTICULTURAL AND FLORAL SOCIETY.

On the occasion of the above Society holding their twenty-second Exhibition in Montreal Park, Sevenoaks, on August 21st, 1889, there was held in connexion an exhibition of bees, honey, and beeswax. In the open class for the best 12 1-lb. sections: 1, Mr. J. Blundle, Halsted; 2, Mr. F. H. Cudd, Chislehurst; 3, Mr. T. Durrant, Sevenoaks. In the Cottagers' Class.—For the best super of honey in either glass, wood, or straw: 1, Mr. W. Hills, Underriver; 2, Mr. T. Hollman, Borough Green; 3, Mr. W. Forest, Platt. For the best exhibition of run or extracted honey: 1, Mr. G. Stemp, Sundridge; 2, Mr. T. H. Dain, Riverhead; 3, Mr. F. Langley, Seal. For the best cake of beeswax: 1, Mr. T. H. Dain, Riverhead; 2, Mr. W. Forest, Seal. Considering the prizes were small there was a fine collection of honey, both comb and extracted. Mr. T. Durrant, Sevenoaks, had a nice collection of bee-keepers' appliances, and a stock of bees in an observatory hive, which attracted a lot of attention.

BRAMHALL AND WOODFORD HORTICULTURAL SOCIETY.

An exhibition of honey was held on Saturday the 24th ult. in connexion with the above Society's first show, in the prettily situated grounds of Helbrook Grange, Bramhall, near Stockport, the property of Mr. Addyman, who kindly lent them to the Society for the occasion. The honey department of the show was in the hands of Mr. T. D. Schofield, of Alderley Edge, Local Hon. Sec. of the Lancashire and Cheshire Bee-keepers' Association, who got up the show with a view to stimulate bee-keeping in the neighbourhood, and to show the skeppists there of the old-fashioned school the kind of honey which can be got by the more modern methods.

Mr. W. Lees McClure, Hon. Sec. of the Lancashire and Cheshire Bee-keepers' Association, and Mr. Lamport Gilbert, acted as judges, and their awards gave general satisfaction. Mr. Gilbert afterwards gave an exhibition of bee-driving, and a short lecture on bee-keeping in the modern frame-hives. There were twelve exhibits in the open class for extracted honey which the judges pronounced to be a very good one. Mr. F. W. Dunsford, of Fordsham, carried off the first prize with a beautiful sample of white clover honey of fine flavour and good consistency. In the class for sections Mr. H. C. Wise, of Poynton, was awarded the first prize for twelve beautiful white clover sections, exhibited in very neat glazed tin case, painted light blue. This class was not a strong one. There were two classes for cottagers only, but these were not so well filled as we hope to see them another year; and the run honey was so poor that the judges felt bound to withhold the first prize. The class for wax was a good one, and the first prize went to an old-fashioned skeppist for a beautiful cake of wax. The awards were as follows:—

Class 1.—For the best twelve sections 10 to 12 lbs. in weight: First, H. C. Wise; Second, T. Jackson, Jun. Class 2.—For the best extracted honey in bottles, 10 to 12 lbs. in weight: First, F. W. Dunsford; Second, T. Whitty; Third, John Bell. Class 3.—For the best super of any description, not sections: No entry. Class 4 (For cottagers only).—For the best exhibit of comb honey, not over 6 lbs. in weight: First, A. J. Oxford; Second, Alfred Horton. Class 5 (For cottagers only).—For the best run honey in one glass bottle, not over 6 lbs.: First withheld; Second, Alfred Horton. Class 6.—For the best exhibit of beeswax, not over 4 lbs.: First, J. Shard; Second, N. Smallpage.

WROCKWARDINE BEE CLUB.

This Club held its fourth annual Show of hives and honey, &c., on Tuesday, August 13th, in the boys' schoolroom, which had been fitted up for the purpose, and the display of exhibits was most effectively arranged.

On tables running down the centre of the room was set out a large quantity of the very finest honey, both in sections and in bottles, while at the end and on both sides were arranged hives, extractors, and other articles of general use in a well-kept apiary.

The entire management of the show was in the hands of the Hon. Sec. of the Club (Miss Eyton), and under her control the entire proceedings were carried out without the slightest hitch. This lady, who was indefatigable in her efforts to make the show a success, was largely helped by Mr. Palmer, a former schoolmaster of the place, and who succeeded in obtaining last year a first-class Expert's Certificate.

It is not to be wondered at that with two such earnest and energetic workers in the van the Wrockwardine Bee Club should be the success it is.

One very interesting feature of the show was the display of *wild flowers* collected by the school children. The flowers were to be only those which the bees were known to visit. These bunches of wild flowers occupied a prominent place in the centre of the room, whilst another special feature was the exhibition of cakes, jams, &c., made with honey instead of sugar, and which were very good. A few samples of honey vinegar were also shown which the judge pronounced as excellent, although not quite equal to some samples shown him by Miss Eyton from her private stores.

The exhibits were divided into three sections, viz., 'Club members only,' 'Cottage members only,' and 'Open to all comers.'

It was in the first section that the keenest interest was taken, as the members of the Club were all anxious to surpass their fellow members, and the competition was so strong and close that it was with the utmost difficulty the judge could decide. In fact each class in each section was so well filled and so closely contested that it was found necessary to award extra prizes to extricate the judge from the difficulty he experienced in making the awards.

The display of wax was not a large one, but the quality was most excellent.

The Rev. E. Davenport of Stourport (1st Class Cert.) acted as judge, and his awards gave general satisfaction to all concerned; and the rev. gentleman, in his report to Miss Eyton, stated that though it had been his privilege to act as judge at many shows in different counties he did not remember having seen a more respectable display of honey, both as to quantity and quality, at any other local show.

The following is the prize list:—

Class 1.—Six 1-lb. sections: John Shuker, 1; H. Jervis, 2; Palmer, 3. Class 2.—Six 1-lb. bottles: Palmer, 1; James Shuker, 2; John Shuker, 3. Class 3.—1-lb. section: J. Palmer, 1; H. Shuker, 2; John Shuker, 3. Class 4.—1-lb. bottles: Palmer, 1; H. Shuker, 2; J. Shuker, 3. Class 5.—Super: J. Shuker, 1. Class 6.—Best hive: J. Carver, 1; J. Palmer, 2. Class 7.—Six 1-lb. sections: H. Brookes, 1; J. Shuker, 2; H. Shuker, 3. Class 8.—Six 1-lb. bottles: H. Shuker, 1; G. Lloyd, 2; C. Clark and H. Brookes (equal), 3. Class 9.—Exhibit of honey half run and half in comb: C. Clark, 1; J. Shuker, 2. Class 10.—Twelve 1-lb. sections: Palmer, 1; J. Shuker, 2. Class 11.—Twelve 1-lb. bottles: Palmer, 1; H. Brookes and J. Shuker (equal), 2; C. Clark, highly commended. Class 12.—Hard candy for feeding bees: J. Fryer, 1; Mrs. Jenkins, 2; C. Clark, 3. Class 13.—Best cake of beeswax: H. Brookes, 1; J. Fryer, 2; T. Shuker, 3. Class 14.—No exhibits. Class 15.—Vinegar made from honey: H. Brookes, 1; J. Fryer, 2. Class 16.—Best 2-lb. cake made with honey: J. Shuker, 1; Mrs. C. Mainwaring, 2. Class 17.—Best pot of preserve made with honey: Mrs. C. Mainwaring, 1; Mrs. C. Clark, 2; J. Shuker, highly commended. Class 18.—Best bunch of bee-flowers: One exhibit, which was deemed worthy of first prize—C. Clark. Class 19.—Best bunch of wild bee-flowers collected and arranged by school children: Vincent Bremmell, 1; George Lloyd, 2; Harry Shawcroft, 3; Beatrice Nichols, 4; Martha Edwards, 5.

IRISH BEE-KEEPERS' ASSOCIATION.

On 28th August, one of the days of the Royal Dublin Society's Horse Show, which brings numerous visitors to Dublin, a conversational meeting was held at Trinity College, where Dr. Traill kindly lent his rooms for the purpose.

The Rev. Canon Sadleir presided, and the following were also present:—Mrs. and Miss Eccles, Rev. W. P. Lowe, Messrs. Croasdaile, Gibbon, Read, Gillies, Abbott, Campbell, Hargraft, Lynch, and the Hon. Sec. Mr. Chenevix. Tea was served about 7.30 p.m., after which portions of the body of the honey-bee were examined through two microscopes, one of them kindly lent by Mr. Abbott. A paper was then read by Mr. Read on 'Some Lessons of the last two Seasons.' The first thing,

Mr. Read said, that struck him in looking back on the seasons of 1888 and 1889, was the illustration they afford of the general rule that a disastrous season is followed by a good one, from which the lesson follows—Take care of your bees in the bad season. The general neglect of this in 1888 left the country short of bees for the good season just past, so that probably more than half the honey that should have been stored was left to waste its sweetness on the desert air. After giving illustrations of the danger of trusting to such fortuitous sources as ivy or other late autumn flowers to make up deficiencies in winter stores, and giving various details connected with the history of his apiary during the two seasons, one of these being that he had fed successfully with soft brown sugar on the top of frames, and also at the sides in a dummy feeder, Mr. Read continued: 'Before packing the bees for winter—indeed, while the autumn feeding was going on—I had raised the frames of each hive a couple of inches from the floor-board, with a result that floor and frames were dry and clean in spring, with the exception of one stock to which the wet had penetrated from outside. All were wintered under enamel cloth quilts, with a bag of sawdust above on from four to eight combs. As soon as this year's honey flow began one or two empty combs were inserted in the middle of the brood-nest, and a rack full of sections with built-out combs given, and in consequence the queen entered very few sections, and the bees that were up to full strength began to store above at once. As soon as these were well occupied, a box of 14 × 4½ inch frames, provided with starters of super foundation, were placed between brood-nest and sections in order to allow the queen liberal room, and which were afterwards to be extracted from or kept for home use.

* * * * * *

'Above these shallow boxes I tiered the section racks in some cases four deep, the empties being always placed below, and the racks removed according as all their sections were complete. Thus I had the pleasure of obtaining more than 100 lbs. of honey from my best stocks. . . . And this result from a honey glut of only about four weeks duration. . . . I attribute a good deal of this success to the good supply of worked-out sections I had on hand from the previous season, which gave the bees a good start.

'Question: If in their absence it will not be good economy to supply full sheets of foundation in the first racks given; but after the glut is well in the bees' time seems to be chiefly occupied in ripening, not in building and storing. Probably the first week or so fattens them so much that wax secretes abundantly. Even towards the close of the season I place the racks of empties below the forward ones, thus getting some work done in them to the credit of the following season. A point to which we Irish apiarians do not, I think, give sufficient attention is having all queens young and at full profit.'

Some suggestions were then made on the subject of queen-rearing. Mr. Read had previously exhibited a nursery for queens, provided with a separate compartment for each queen-cell, and having one side covered with fine wire netting, so that when one queen hatches out she cannot get at the others, while yet the bees are able to feed her through the netting.

Mr. Gillies asked if the brown sugar given over the frames was boiled. Mr. Read said, No, it was brown Porto Rico sugar pressed together and put on thin paper; the bees eat through the paper, and as they do so, the sugar gets into a cake, and so does not fall below.

In the course of some conversation as to the honey-flow Mr. Abbott stated that white clover only secretes honey in hot weather; he had seen bees absolutely starving when the fields were quite white with it; lime-trees, on the other hand, will secrete honey in damp, moist weather.

Canon Sadleir asked if red clover was of any use to bees. Mr. Abbott said not to black bees, and even Italians will only work on it to a limited extent; but there was a pink clover, a hybrid between white and red, on which any bees would work.

After the discussion of Mr. Read's paper, Mr. Gillies brought forward the question of adopting a uniform standard for judging honey. Two systems of marks for various qualities, one for sections, one for extracted honey, were provisionally approved of, and it is hoped that this may prove the first step which may eventually lead to the adoption of systems of this kind by the Association. This would make the judging of honey much less uncertain and fluctuating than it must be so long as the judges have no fixed rule to go by as to the relative value of various points of excellence in exhibits.

Swarm on a Gooseberry Bush.—I have pleasure in sending you what I deem a very curious specimen of bee workmanship. You will observe that a gooseberry is enclosed within the piece of comb. It was well covered over on both sides, but I rubbed one side bare in finding out what it was. Its history was as follows:—On Thursday, the 8th of this month, a swarm must have come off one of my hives and lighted on a gooseberry bush. I fix Thursday, as there were some warm blinks of sunshine on the afternoon of that day. Friday was very dull and drizzling nearly the whole day: at any rate, there was no such weather as to induce a swarm to leave. Saturday was an exceedingly wet day out and out. It was on Saturday, about 10 a.m., that I discovered the swarm. It was most thoroughly drenched. I spread a cover over them, and they got dry and somewhat lively by 7 p.m., when I put them into a 'ruskie.' This piece of comb was made while they hung in the berry bush, hence the gooseberry in the comb.—Wm. Stephen, B.D., *Garrock Manse, Laurencekirk, N.B., August* 15, 1889.

[The interesting specimen of comb accompanying this letter was about 3¼ inches long and 2 inches wide. The gooseberry, which is one of the yellow sort, is completely embedded in the upper part, irregular cells being formed upon it. It is a good example of the endeavours of a swarm to found a home, even under the most adverse circumstances.—Ed.]

An Apiarian Battle.—On Saturday last, in the village of Cargo, a combat of a truly novel description was witnessed. A hive of bees belonging to a professional gentleman of this city swarmed on Thursday last; after which they were hived in the regular way, and appeared to be doing well. On the Saturday after, a swarm of bees, from some neighbouring hive, appeared to be flying over the garden in which the hive above mentioned was placed, when they instantly darted down upon the hive of the new settlers, and completely covered it: in a little time they began to enter the hive, and poured into it in such numbers that it soon became completely filled. A loud humming noise was heard, and the work of destruction immediately ensued; the winged combatants sallied forth from the hive, until it became entirely empty; and a furious battle commenced in 'upper air,' between the besiegers and the besieged. A spectator informs us that these intrepid little warriors were so numerous that they literally darkened the sky overhead like a cloud: meanwhile the destructive battle raged with fury on both sides, and the ground beneath was covered with the wounded and the slain; hundreds of them were lying dead, or crawling about, disabled from reascending to the scene of action. To one party, however, the palm of victory was at last awarded; and they settled upon the branch of an adjoining apple-tree, from which they were safely placed in the empty hive, which had been the object of their valiant contention, and where they now continue peacefully and industriously employed in adding to the stores of their commonwealth.—*Carlisle Paper.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements).*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

SUSSEX OLD WORLD BEE LORE.

(*Continued from p.* 377.)

[2281.] As I sed, t' heeves winter'd well, and they went threw t' spring all rite. I tyed t' stakes 'xtra toight at top t' keep t' hackles on, for I didn't want any on 'em to blow over agen. Durin' t' May month I seed 1 or 2, or it may be 3, bees, sumtimes nun at all, 'cordin to the we'ther, a flyin' roun' t' tee 'ole in front; now these 'ere bees was jist 'atched owt, an 'tryin' thair 'prentis 'ans at flyin', and when I went neer 'em, they flyed rite away, fri'tened I s'pose, so I didn't go anear em agen 'till 'bout the middel o' Joon, and won verry 'ot day I went tew dig up sum forrid 'tators near t' heeves, and foun' too on 'em to be full o' bees, an' a workin' surprisin'. That evenin', arter sunset, I toighted 'em to find t' wate, and t' heeve wot blow'd over in t' winter wade more nor 20 poun's, and this 'ere heeve was as strong agen as t'other, and I naaterally koncluded that warming t' heeve at t' fire in winter 'ad in sum way or t'other 'astened t' 'atching owt o' t' queen's eggs in the com's. If that air warn't it, I can't well count for't, an' its better to say so at wunts than t' beet 'bout t' bush. We may all hev our own ideers on t' p'int, but we can't none on us be sartin, and that ain's a faet. 'Bout a fortnite arter t' toime I speak on, t' bees in t'other heeve 'atched owt all in wun day. It was verry 'ot, too, and thunder'd and li'tened in t' mornin', which no dowt 'ad a little tew doo with t' bees 'atching owt so sudden; and that evenin' t' bees in this heeve was a workin' loike winkin', they couldn't store thair honey fast enuff in the com's, and so t' bees wot braught pollen 'ome had to shoot it down owtside. (Note.—Thair is allus too mutch o' this 'ere stuff in a heeve.) I railly bleeve there was a 'eap as big as a kwart mug jest owtside. No wonder thair is so mutch o' this 'ere stuff in t' com's in autum if they gits it in this rapid manner. I maid a speshal note on't. The only wonder is that heeves in autum ain't choke full o' pollen and nothink else.

A few days arterwards I put sum straw caps on t' heeves, an' these hev' bin full o' honeycom' ever sin' t' first week in July; but in coorse I shan't take 'em off 'till autum. I never do take 'em off 'till then. My feyther and gran'ther ne'er did take theirs till then, nayther do I mean to. Sum folks keep messin' 'bout with their bees all t' summer long, which ain't naateral at all, and t' bees doant like it. T' paason—an' I must say 'ee's a rale good sart—'ee gives me t' straw caps and I soon show'd 'im 'ow to fit 'em on.

Our summer this 'ear 'as bin uncommon' fine for bees until Saint Swiffun's day, and as usual that ere preshus Saint upset the we'ther intirely. I wish t' Guv'ment 'ud do away wi' un. Of all the Saints in the Kalender we could best spare 'ee. In giniral I hev observed 'ee breaks up t' fine we'ther, and in this 'ere respect the Guv'ment owes a public dooty to the country in puttin' 'im down.

I allus loikes tew do a good nayberly axion whenever I 'as oppertunity; and I sumtimes 'as 'ad to advise bee-keepers 'bout 'ere, as doant no as mutch as I do 'bout bees, what to dew wi' thair heeves when t' bees be all dead. I well mind t' fust toime as I ever advised anybody was early in t' 'ear '80, arter the wet summer o' '79. Jim Hedgstake (y'ungest brother to Tom what dide sum few 'ears afor), 'ee sends for me for advise. 'Ees bees was all de'd. Jim lived at a owt-o'-t'-way 'amlet down 'ere neamed Oldham, which was always famo's for its 'ome-cured bacon. Sing'ler fact this. When I gits thair I looks roun' t' gearden, and I soon spied t' heeves close under a wall facin' dew north; thair was 4 on 'em altogether, or jest I too many, for 3 be a plenty for anybody. Jest then Jim 'ee kums up.

'I doant wunder at yer bees bein' all de'd,' sez I, 'a-facin' north; what kould yew hev bin thinkin' on to put 'em thair?' and so I moves 'em to another part of 'ee's gearden facin' dew sowth, fust liftin' t' heeves very kearfully to see that thair warn't no live bees among 'em. Yew cant be too pertikler 'bout this 'ere, for wunts 'pon a toime I was a-goin' t' show my naybers 'ow to manniperlate bees an' unforternitly I lifted t' 'rong heeve—this was on a warm evenin' in autum', an' we all 'ad to cleer owt t' gearden in double-quick toime. I hev bin moor kearful since.

Arter I hed maid a kritical inspeckshun o' t' coms I told 'im that 2 o' t' heeves would 'atch owt 'bout t' middel o' Joon; another heeve—t' coms bein' noigh as black as my 'at—prob'bly 'bout a week later; t' other wor a very old heeve, and t' bees 'ad b'ilt a lot o' curi's things jist loike akorn cups cast in a whacks mo'ld, at t' edges o' t' com's: thair wor 'bout a dozen or 14 o' these 'ere in t' huli. Whenever I detect these 'ere on t' coms I allus considders it a dowtful sine, and I told 'im so; and I was kwite rite, as t' event proved, for t' bees in this 'ere heeve didn't 'atch owt at all, whereas t' other 3 'atched owt jest 'xactly at 1' toime I spessifyed. 'On no 'count,' sez I, 'go aneer t' heeves until t' toime kums for t' bees tew 'atch owt.'

Thair was 'bout 'arf a gallun o' de'd bees inside each heeve, these I poked out with my 'nife and then scraped t' stands quite clean (this is a 'portant matter), and then I put t' heeves up, an' got 4 noo 4-legged stands to rest 'em on, for t' okt stands aint got but 3 legs apeace, an' these 'ere was firpole, the legs on t' new stands bein' o' good, sownd oke, which is a grate p'int, as they last longer in t' ground than firpole, which soon rots; I then puts t' hackles over, druv t' stakes in, an' tide 'em toight at top, and I sed wheu I went away that nite, 'Let me 'ear 'ow yer bees gits on sum toime durin' t' summer, Jim,' and 'ee sed 'ee would.

Well, I didn't see nor 'ear anythin' o' 'im fur sum months arter until wun fine evenin' in Septr. o' that 'ear, I was a-diggin' up 'tators in t' gearden,* when Jim's y'ungest boy 'ee kums in with a big bullrush basket on 'ees arm, owt o' which 'ee fetches t' biggest rabbit I ever clapped eyes on.

'If ye plees, Mr. Goodheeve,' sez 'ee, 'feyther sends ye 'ees compliments an' 'ee 'opes ye'll 'xcept this ere fine teame buck, wot ways more nor 9 poun's, for yer kindness in 'tendin' to 'ees bees last Jannivery; 'ees jest 7 munths hould this verry day, an' we put 'un up a fatten' ever sin 'ee wor took off t' tet. Feyther an' all on us thowt 'ee wor a doe at fust, 'ee growed so big. Aint 'ee a whopper? Three o' t' heeves, feyther told me to tell 'ee, 'atched owt jest at t' toime ye sed thay would, an' hev' done uncommon well. T' other aint kum tew life yet, and feyther 'ee told me I was to ax 'ee if ye thinks the queen-bee's eggs was all addled in this 'ere heeve, and wouldn't it be better, if ye thinks this is the case, for feyther tew melt up t' com's for whacks?

Now, sir, in kommon fareness, I ax doant this littel

* T' squoire 'ee 'lows me noigh arf an aker o' geardeu groun' rent free not fur from t' Lodge where I lives; the gearden roun' the Lodge bein' purty much all flower-beds, an' nice they looks too; but t' squoire's gar'ner 'ee cheetly 'tends to these 'ere.

anickdote bare owt fully what I sed 'bout my stile o' tratement bein' a grate sucksess? Peeple naaterally begun to talk 'bout it 'roun' 'ere, and I soon got kwite famo's in these 'ere parts. Moor nor wunts arterwards it was sed to me, 'What a lot yew noze 'bout bees, Mr. Goodheeve;' and I sez, 'I dew, an' I aint wun tew deny it.'

'Whar do ye git all yer larnin' from, Mr. Goodheeve?' sez another.

I sez, feelin' very prowd t' while, 'I gits it all owt o' my own he'd. Study an' 'xperience combined—that's whar I gits it.'

If we hev' got any talons [talents?] bestow'd on us we shouldn't hide 'em away, but use 'em for our mew-tooal ben'fit.

I 'rite this, Honrd Sir, not in any vaneglorys, boastin' way, but for the ben'fit o' yer r'aders in giniral, so that should 'casion rise at any toime they may be able to advise their naybers as I did then, and I mak' no dowt they will be ekwally successfool. 'Nothin',' sed my old skoolmaster, an' I often thinks o' 'ee's words, 'nothin,' sez 'ee, 'suckseeds loike sucksess!' Thair be sum very clever peeple in t' world what keeps all their 'noledge (thair talons, I meant t' say) locked up in thair own buzzums, and thair giffs be consekently of no valley at all to others; but I aint wun o' this sart. I loikes tew dew all t' good I can while I be in t' world, and it would be better if everybody else was loike me in this 'ere respect.

Phil Hackles tells me 'ee thinks I could 'rite a book, and a good book too, not wun o' t' or'nary sart—thair be only too many o' these already—'bout bees, an' I well noze I could too. I wunt say *better* nor anybody else, for I aint wun tew boast, but I could dew it as well. I've 'ad a good dale 'xperience in my toime handlin' bees; and if any Lunnun bookcellar (they all rades the *Bee Jernal* in coorse)—if any Lunnun bookcellar, I say, thinks 'ee 'ud loike to buy it arter 'tis dun', let 'im 'rite at wunts, and we'll kum tew bisnez.

Now I kums tew look back 'pon t' 'vents o' my loife I must say I hev 'ad a good dale o' 'xperience; *theery* may be all very well, but it is sartinly troo that nothin' tayches loike 'xperience; an' now that 'minds me o' summat which bewtifully 'llustrates the truth o' this observashun.

Sum things kums naateral loike, and sum things kums by 'xperience. Yew've all heer'd 'bout t' orkard mishap I 'ad wi' t' bees at t' squoire's sum few 'ears agoo, and 'ow old Bruno, the newf'un'land, got badly stung, and 'ow ee played old guzbry wi' t' flower-beds, and 'ow 'ee cleer'd off t' flowers rite and left in the 'servatory (poor old Adams, the gar'ner, aint bin what ye may call properly roight ever sin', t' squoire 'ee hev' now penshion'd 'im off and 'lows 'im a 'ouse tew live in rent free); well, as I say, t' poor old dog 'ee 'ad never sin a barframe heeve afore that day, and naateral enuff 'ee didn't feer it in t' laste until 'ee got so badly stung. Now, 'about a 'ear arterwards t' squoire 'ee sent me down to paasons with a basket o' 'ot'ouse grapes, and melons, and 'ees compliments. When I 'ad deliver'd it, t' paason 'ee kums owt, gives me 'alf-a-krown, and sez very kindly, 'Sam, kum in an' hev a look roun' t' gearden.' So in I goos, and old Bruno, who was wi' me, 'ee follers me in too, but when at length, arter we 'ad dun a-lookin' roun' at t' flowers, we goos into t' kitchen gearden, and old Bruno 'ee ketches site o' t' barframe heeves at t' farther end, which t' squoire 'ad given to paason t' 'ear afore, the poor dog sim'd tew be fri'tened owt o' 'ees wits, an' 'ee gives a terribul 'owl, and away 'ee runs wi' 'ees tale atween 'ees legs, an' 'ee run an' 'owled, and 'owled an' run, as tho' t' *ould gintleman* hisself wor arter 'im, an' 'ee never stops a-runnin' 'till 'ee gits roight whoam. Now, that's what I calls a-larnin' wisdom by 'xperience.

Now, sir, I must bring my observashions to a konclusion. I hev 'rote more nor I intended when I begun, and I hev 'rote it well. The spellin' may p'raps be a bit fa'lty, but the stile aint bad at all. When I wor a littel chap my old skoolmaster, who was a grate skoller, sez to me wun day, 'Sam,' sez 'ee, 'yew air the wuss speller in the hull skool, but yer giniral stile o' compersishun is farely good. Ye certinly sims tew hev plenty of 'ssurance.'

'In coorse I hev,' sez I, 'an feyther 'ee sez there's nothiu' like hevin' plenty o' 'ssurance in makin' he'dway threw the world.'

Sins then my stile 'as grately improved. Yes, sir! 'Tis *stile* that is everythin' in these 'ere days; spelliu' is nothing like so 'portant. Why, any child nowaday can spell; but, sir, it aint every child as un'erstands STILE.

(N.B. Please, Honrd Sir, tell yer printer tew put the last word in small cappitels.)

Now, before I put my pen down, I hev a bit o' advise tew giv to t' book'riters whoose books air a'vertised in yer *Jernal*. Why aint they got more 'ssurance? This is jest t' p'int. A grate many book'riters air at fa'lt in this 'ere matter. They air brimful o' theery, but, nulike me, they aint 'ad much practical 'xperience. They lays down a propersishun or 2, but they never sims tew be sartin that thair ideeers are kwite krect, and thay says so in startin', hens as a naateral consekens thair books doant sell; at all events, they doant sell as they oughter. I cant see 'ow they could 'spect 'em to in 'pearing under such condishuns. Peepul doant want theery in these 'ere days, thay wants summat praektical. For my own part I aint trubbled with any sichlike dowts. When anybody keeps on tellin' me they hev got a lot o' new ideers, and yet they be allus open to convickshun, I naaterally koncludes that on the hull they dunno mutch 'bout the subjeck they 'av in 'and, although, in coorse, I am only too pleesed to contriboot owt o' my own stores o' 'noledge to make good thair defishency. I hev bin kearful to detayle in the cleerest possibl' manner t' main p'ints of my sistem o' management, and I hev' alloded incident'ly in goin' along to the sucksess I hev' invari'bly met with. In 'ritin' I allus drives strate to t' pint, an' if I hadn't got a roight good place 'ere under t' squoire, I'd embrace litteratoor as my own perfesshun in loife. I'd enter into it with as much confidens as a duck enters our big pond in t' park, an' as a 'riter o' printed books I s'pose I should soon bekum famo's and make a pot o' money. I am, Honrd. Sir, your verry humbel servant, SAM. GOODHEEVE.

JOTTINGS BY 'WOODLEIGH.'

[2282.] SUPER FOUNDATION.—Now that we have harvested our crop of honey for the season of 1889, and, as far as my own apiary is concerned, it has been a good yield of excellent honey, equal in quality and exceeding in quantity the Jubilee season of '87; and with the satisfactory feeling engendered in one's breast by a good season, let us take heart and make preparatious for another good year in 1890; and in doing so bear in mind that it is only by using the best of everything that a first-rate article can be put on the market, and, as in the production of comb honey foundation forms an important item, it is to the interest of bee-keepers to procure the best. This is the *crux*: Which and whose make is the best? It appears invidious to name any of the manufacturers of foundation in this country, and to advertise the manufacturers of foundation in America would imply that our English makers were not such good workmen as their compeers on the other side of the Atlantic in the production of a first-rate article in foundation. In choosing super foundation always select the sample with the thinnest septum and highest side walls. I admit that my ideas have gone with the natural-based in preference to the flat-bottomed, and from what I can glean from bee-keepers that is the kind generally used. Some writers contend thaf if flat-bottomed super foundation is used, that the bees convert the flat bottoms of each

cell to the natural shape, and in doing so reduce the wax to as thin a septum as in natural-built comb. If so, that would be a point gained, but the practical question is, Do the bees do so? I have used a quantity of flat-bottomed stock foundation, and in opening some hives yesterday I noticed the cells are still *flat-bottomed*, after several generations of bees have been hatched in them. From this premise I should infer that if bees do not alter the shapes of the bottoms of cells forming the brood-nest they would not in the store combs. Perhaps others will give their experience in the matter.

Unfinished Sections.—In most apiaries there are some, and in some apiaries where management is lax there will be a large number of these left at the end of the harvest. These should have the honey extracted from them put back into the crates without dividers, and placed on the hives in the evening for the bees to clean them out. Only a little wrapping will be required over them, as the object is to get the combs cleared of both honey and bees. Then each crate of clean combs should be wrapped in a piece of paper, and a piece of camphor will help to keep out the wax-moth, but will not retard the development of the eggs of the moth if laid while on the hive; therefore the combs will require looking through once or twice during the winter. These combs will be of great utility to the bee-keeper another season, enabling him to have some early fruit-blossom honey before his neighbours, also acting as a decoy to induce the bees to take to the supers earlier if a few are placed in each crate over the centre of brood-nest.

Sections Two and Four Bee-ways.—The development of sectional supers during the past few years has been to give the bees as full and unrestricted passage to all parts of the super possible while using the usual one-pound section. Now, after an extended trial, I am not able to state positively that the four-bee-way sections are better filled by the bees than those having only two bee-ways. During the present season, when I have taken off a crate of twenty-one sections, each one well filled, I have remarked to the good wife, 'I think we must work all four-bee-way sections another year. I have a splendid crate full here,' when, perhaps, the next crate may consist of two-bee-way sections equally well filled, when I have had the retort courteous that there was but very little difference in two or four-bee-way sections as regarding the filling by the bees, but that the two-bee-way sections were best to handle full and the best to glaze, also the best to handle after they were glazed. Now, these are three points of utility to the merchant; the third point—that they are the best to handle after they are glazed—requires a little further explanation. The four-bee-way sections have only four projecting corners on which the square of glass rests, while the two-bee-way have two whole sides. The first-named, after glazing, if the glass is thin, requires careful handling or the glass will crack by very slight pressure, and possibly damage the comb of honey inside, making it run and reduce its value.

Folding Sections.—Those bee-keepers who keep an *olla podrida* bee-book may find a jot worth recording in the following:—The one-piece section in dry, hot weather, after a journey by rail, and then a distance per carrier, often exposed to the rays of a burning sun, and the equally brittle-ising influence of a dry wind on the skid of the carrier's van, are very apt to break at the corners when folding. If the sections should arrive in the middle of a honey-flow, and are wanted at *once*, I find a good plan to make them tough is to place a lot of them together edgewise, and with a vessel with only a very small outlet, pour some *hot water* into the V-shaped grooves, when the sections can be folded in a few minutes without breakage; but if sections are placed on a brick floor that is generally damp—and there are generally such spots in most houses, especially in the country—for twenty-four hours, there is not more than one per cent of breakages. Now, in folding sections, I myself only use the hands; the section is folded over, and the toothed ends forced by pressure into each other. I can fold very quickly, as there is only one operation in the job. My wife, who folds most of our sections, uses a hammer to tap the toothed ends together. *Au revoir.*—Woodleigh.

CUMBERLAND NOTES.

[2283.] The weather during the past three weeks has been most unfavourable for honey-gathering, and we fear the results of the annual visit to the hills in the heather districts will be very unsatisfactory. In the Ennerdale district about 200 stocks are located, and even with two weeks' good weather many of them might increase their store considerably, but not to the extent of repaying the labour and risk some have to undergo. I hope in a week or two to be able to report that steps have been taken to unite the West Cumberland bee-keepers more closely together. The Harrington people are moving in the way of having an industrial exhibition and competition during the month of November; and as I have been appointed secretary, am fully determined that the apiarian section will be one worthy of the occasion. A few bee-keeping friends have already offered their assistance, and I shall be pleased to hear of any others whom I have not had the pleasure of meeting, and who will find this a special opportunity of having a reunion in West Cumberland, the advantage of which must be very apparent to every enthusiastic bee-keeper.—E. McNally, *Harrington.*

BEE-STING.

[2284.] On Saturday last I was removing some sections of honey. I was pretty well protected by veil, &c., for the occasion, but got stung notwithstanding in the hollow behind the knee on the long saphena vein. Foolishly enough I did not stop my work and remove the sting, but after a while began to feel a peculiar sensation about the face and eyes. I then drew up my trousers' leg, to find the sting still adhering in the flesh. I removed it, and applied some strong ammonia, but, to judge by the sequel, much too late in doing so. Gradually the whole of my skin assumed a slightly red tinge; my eyes felt as I certainly never felt them before, though somewhat resembling irritation from smoke. My face was slightly puffed, my lips felt stiff and dry when I moved them, and when I looked at myself in the glass the white of the eye was as bright as signal-red. I cannot describe the peculiar feeling I experienced, and really became alarmed, which only made matters worse. I took some brandy and water, which had a decidedly beneficial effect. I walked about in the air and about the house, but before going to bed, I took a dose of castor oil—why, I hardly know. By the time I had been in bed ten minutes, the whole of my body broke out in a rash, so that when I put my hands down my thighs, they felt as if I had nettle-rash, or something of that kind. I slept fairly well. The effect had disappeared in the morning, though the calf of the leg was swollen and rather painful, but there was little or no pain or swelling immediately after the sting, which was rather curious, the main effect having travelled elsewhere, and could not account for the phenomenon, except that the poison had flowed through the veins, so rapid was it and far-speeding in its effect. If any one who understands the reason for such a consummation can throw any light upon the subject, I should be glad and thankful to hear it. I never suffered like this before, though I have often been stung in almost all parts of the body—sometimes severely. Many questions may arise on the point. Would it have the effect of rendering me proof against future stings? An experiment would settle this, though I feel rather backward in trying it. Did

it enter the saphena vein? Could a sting penetrate the coat of a vein, tough as it is? Would the instant removal of the sting have prevented the serious result?

I send the above thinking it may be interesting to your readers, and also a warning to bee-keepers in general, showing how desirable it is to remove the sting at once and apply some antidote, of which the best seems to be ammonia.—THOMAS FAWCETT, *Blencowe, near Penrith, Cumberland.*

[From the symptoms you describe, it is most likely that the sting did penetrate the vein. We have never had the like misfortune, but, judging from the easy way in which bees have driven their stings through so-called sting-proof indiarubber gloves, they would have no more difficulty in penetrating the coats of a vein. Many poisons when injected into a vein only take a few seconds to permeate the system, and with an extremely virulent poison, like bee-poison, the symptoms you describe would quickly follow. The only way to have effectually prevented the poisonous effects would have been to have removed the sting at once, and to have tightly tied the limb above the stung part, and then to open the vein to get rid of the poison, but this would have required a skilled hand. We do not think that this solitary inoculation, severe though it was, would render you sting-proof, but we should be glad to hear of your after experience, though strongly dissuading you from any attempt to get stung in a vein, which might have very serious results.—ED.]

STANDARD GLASS JARS.

[2285.] I often think what a good thing it was for bee-keepers when the standard frame was fixed as the proper size, as I consider it is a great advantage to bee-keepers. I should also like to say a word about the glass jars, which I consider would be another advantage to bee-keepers if one class of honey jars were put up as a standard jar. For myself I cannot see why the tie-over jars should not be acknowledged as the standard jar, as I have often heard complaints made about the screw-top jars leaking; and not only the leaking of these screw-top jars, but why should bee-keepers pay so much more money for the screw-top jars? They cannot get any more for them than what they do for the tie-over jars. Then, again, in showing some judges prefer screw-top jars, some tie-over jars, therefore so many bee-keepers go to the extra expense of buying screw-top jars for showing, perhaps at the same time, like myself, having a large stock of tie-over jars on hand, and very often, after going to the extra expense of buying screw-top jars, get no prize. So I think it would be an advantage to bee-keepers if the tie-over jar was acknowledged as the standard jar both at shows and at market, as they are by far the cheapest, and there would be no extra expense of buying screw-top jars for shows. Some may say screw-tops are easier for the judge to open and fasten up again, but I think every exhibitor will agree with me and purchase a piece of muslin to throw over his honey, so that in case the judge should open any of the exhibits he could throw it over the honey again and go on with the judging without having to stop to tie the jar up again. I should like to see, through your valuable *Journal*, the opinions of other bee-keepers in these matters.—A SHROPSHIRE BEE-KEEPER.

SOFT WATER FOR MAKING SYRUP.

[2286.] Spring water is always more or less 'hard,' holding in solution lime and other substances, which render it incapable of taking up as much sugar as 'soft' water. I find it far preferable to use the condensed steam water, but where this cannot be obtained, rain water is equally good; but care should be taken that it is clean, otherwise I think it should be filtered. My experience makes me believe that five per cent less water is necessary in making syrup in this locality if soft water is used, and the food must be far better for the bees, and less trouble to them in storing, and is less liable to crystallise in the feeders. I hope this hint will be of use to some of your readers.—CHILDE, *Semington, Trowbridge.*

LEAKING BOTTLES.

[2287.] In reply to 'Woodleigh's' question in last week's 'Jottings' (2268), I beg to say I do *not* remove the corks for screw-cap bottles before pouring in the wax. If the corks were a trifle thicker, and free from all *holes* (a difficult thing to get) this would not be required. My objection to the corks inside the neck with melted wax over it, is that it gives judges much trouble at shows, and my plan is as effectual and simpler.—W. E. BURKITT, *Buttermere Rectory, Hungerford, August* 24, 1889.

EXCITED BEES (2270).

[2288.] It is always dangerous to let fowls go near bees, as, if at all out of temper, they are certain to attack them if they go near the hives.

N.B.—What a pity it is the bees have not the sense to serve sparrows, tits, and swallows in the same way.—W. E. BURKITT, *Buttermere Rectory, Hungerford, August* 24, 1889.

DEPARTURE OF BEES.

[2289.] About the middle of the month of May last the bees from two stock hives that seemed on the point of swarming, disappeared, and no tidings have been heard of them since. The hives were of the Standard bar-frame pattern, and were situated in a backyard of one of a row of houses; they had been moved from another house, about a mile distant, early in the month of February, but were comfortably settled in their newer home. They left no honey, and only a slight trace of brood.—J. M.

Echoes from the Hives.

Sussex.—I am glad to be able to report another cure of foul brood. A neighbour, who has kept bees for some years, and that without any sign of foul brood, suddenly discovered, in the early part of this summer, that two or three of his hives were badly affected with it. I advised him to try the plan which I have found effectual, viz., fumigation with salicylic acid, combined with syrup medicated with Cheshire's cure, and the result was thoroughly satisfactory, the disease being soon checked, and cured. This year has been a successful one with me. My locality is not a favourable one, I think, for the production of honey, being high land, very much exposed, and not far from the sea. The honey-flow also was very short, but, notwithstanding, my bees have produced an average of 57 lbs. per hive of excellent comb honey, and one hive produced 83 lbs. They have also an abundant supply of winter stores.—A SUSSEX RECTOR.

Pontypridd (near), Sept. 1.—I feel, after the passing season's experience, that I am within measurable distance of entering the list of bee-keepers who get their stocks to average about 100 lbs. per stock. My three best hives have yielded me respectively 78 lbs., 70 lbs., and 60 lbs. Considering that this result has been achieved in spite of some disadvantages (living a long distance from my apiary, and able to visit it only at irregular intervals being the chief), I think I am justified in looking into the future with a good deal of confidence. The season, too

has not been an ideal one. Can it be a mere coincidence that my long 'parallel' have given better returns than the right-angled ones? I have four of the former, three of which gave results as above, while the fourth equalled the best of the right-angled sort, although the latter constitute the majority in my apiary. I believe it is not a mere coincidence, but that there are solid reasons for the different results. Besides, it is to me far easier to manipulate a stock in a long hive than in one of the square pattern.—EAST GLAMORGAN.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

T. S.—*Foundation.*—The sample sent is made from what has been termed 'commereially pure beeswax.' It melts at a temperature of 142° F. Absolutely pure beeswax melts at 146° F. Such foundation in warm weather saggs to such an extent as to break away from its attachments, and frequently causes by so doing the destruction of a colony.

R. DRIVER.—1. *Stupefied Bees.*—The honey bee (*Apis mellifica*) works upon the single dahlia, and obtains honey from same, but we never saw them in the condition you name when doing so. The humble bee (different varieties) will often be found in this stupefied condition, especially towards evening; they will remain upon the flower all night, until the warm sun of the following day revives them. It is not only on the dahlia they get in this condition, but also on most other flowers during autumn. Our opinion is that the rapid fall in the temperature at the time when the bees are upon the flowers has more to do with it than any soporific influence of the nectar obtained therefrom, as in the height of summer we rarely find them in this condition. 2. *Sugar Syrup.*—Sugar syrup is never changed into honey by the bees, neither is it possible for it to be so changed. Honey is the nectar obtained from flowers; sugar, the expressed juice of the sugar-cane. As well might we expect turnips to grow from carrot-seed as honey to be produced from sugar syrup.

COTTAGER.—1. *Sample of Honey.*—The honey sent is of excellent quality. 2. *Keeping Honey.*—If the honey is to be sold in small packages, it is best to put in same while it is in a liquid condition. We prefer it kept in earthenware jars well covered up, the jars to hold from four to seven or eight pounds, as such sizes are very saleable.

C. E. THORPE.—*Keeping empty Bee-hives in Garden.*—There is no law to prevent a person keeping empty bee-hives in their garden, neither should we consider it right for such an inquisitorial law to be passed. If persons keeping bees fail to look after the swarms, the loss of same is their fault, as they have the (allowed) power to follow a swarm and claim same, no matter where it settles so long as it has not passed out of their sight from time of issue from their hive. But placing hives in a garden purely to decoy neighbours' swarms is the reverse of honourable.

A. E. H.—*Carniolanising Stocks.*—To raise pure Carniolan queens, you must not only have at least two pure stocks to begin with, but you must be in a district where no other variety is to be found within (say) ten miles. This you cannot be sure of. For an order of your extent you could not do better than communicate with Mr. Frank Benton, of Carniola, who advertises in our columns.

R. CHAPMAN.—*Mead.*—You will require a license to sell mead. By Section 3 of the 'Intoxicating Liquor Licensing Act, 1872,' no person can sell *intoxicating liquor* without a license. By Section 74 'intoxicating liquor' is declared to include (*inter alia*) 'sweets and any fermented or distilled liquor. By the 'Wine and Beerhouse Act, 1870,' Section 3, the word 'sweets' is declared to include 'sweets, made wines, *mead*, and *metheglin*.'

R. SAUNDERSON.—*Heather Sections.*—We should prefer to remove these as fast as completed. The bees should be brought back as soon as it is found that they are ceasing to get any honey. All sections should be removed a day or two before starting home. No specific date can be given for the return journey as different localities vary.

FAULLI.—1. *Bees on Heather.*—These should not be disturbed while filling the sections. Nearly all the honey should have been extracted from the frames just before the heather commenced to yield. You will experience very great difficulty in getting heather honey out of the combs with an extractor. The late Mr. Raitt designed a screw press for this work.—2. *Bees in Poplar Tree.*—We presume the entrance hole is small, if so their stores must remain 'hidden sweets,' unless you sacrifice the tree by sawing out a piece. Can you do so? We should prefer either to leave them alone, and secure the swarms, or cut the tree down and put the bees in a hive if you can secure them.

INQUIRER.—The insect forwarded is the *Sirex gigas*, or gigantic saw-fly. The sirex is an internal borer of trees. The larvæ do much damage to fir and other trees. It is remarked that the larvæ take a long time before they reach maturity. It belongs to the order *Hymenoptera*.

M. G. S.—1. *Ants.*—These insects may be prevented by turpentine rubbed on the stand and bottom of hive, or by a chalk mark round the legs of the hive or round the entrance. 2. *Heather.*—No. 1 is the heather most patronised by bees for the nectar the small flowers contain. Nos. 2 and 3 also receive attention, but do not secrete so much as No. 1. 3. The sample of sugar would serve very well for dry sugar feeding; it might do for syrup-making, but we prefer the crystallised. 4. It would be desirable to remove the combs which are not covered by bees on both sides, and reduce the size of the hive by division-boards placed on either side.

CRUST.—*Suspicious Comb.*—Chilled brood only.

ARTHUR HUGHES.—Not foul brood.

E. R.—*Queen leaving hive during Examination.*—The probabilities are against her finding her hive again if she does not return before it is closed up. She would hardly have had the chance to make any observations. Your former question was answered under the initials 'C. R.' in p. 369.

We have received a letter animadverting on the judging of a show in Oxfordshire. We would suggest that the matters in dispute be settled by the local committee, and also that the Committee exercise great discretion in the selection of the judges. We prefer not to publish the letter.

A SWARM OF BEES IN A CHAPEL.—A short time before the congregation worshipping in the Baptist Chapel in St. George's Place, Canterbury, had left on Sunday morning last, a colony of bees entered by one of the windows and settled in the gallery. Mr. G. Uden succeeded in taking them, but several remained behind, which were sulphured. Some children, attracted by the novel sight, were stung, but no great harm was done. About two years ago a swarm was taken in the same place.

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EMINENT BEE-KEEPERS.

No. II.—C. J. H. GRAVENHORST.

There are no more enthusiastic and able bee-keepers, or to whom we are more indebted for advancement in apiculture, than clergymen and schoolmasters. It will be noted that the majority of those bee-keepers whom we have selected as 'eminent' bee-masters have been of those professions. Pastor Dzierzon and the Rev. G. Raynor are representatives of the former, W. Raitt and C. J. H. Gravenhorst of the latter. Apiculture to be a success requires a close and earnest power of observation, and a careful and continuous study of a most fascinating portion of the work of Nature. Bee-keeping acts as a compensating power in the life of its professors. After the hard preparatory study for the services of the pulpit, and after the exhausting duties of the schoolmaster, how delightful is the change to an employment where Nature is the subject, and which tends to elevate the mind and to refine the taste. The teachers of Germany not only occupy themselves in teaching the young those studies which will prepare them for the battle of life, but a large number of them occupy themselves in the culture of bees, raising silkworms, keeping poultry, and in the prosecution of other minor industries.

C. J. H. GRAVENHORST.

C. J. H. Gravenhorst was born September 26th, 1823, and while he acted as teacher he was in the habit of keeping bees. In the year 1863, in consequence of a disease in his ears, he was compelled to give up teaching as a livelihood, and, removing to Braunschweig, he devoted himself to the keeping of bees as a means of support for his family.

In the neighbourhood of Braunschweig, especially in that portion of the province of Hanover called the Lüneburger Heide, bee-keeping is in a most flourishing condition. Here are extensive plains covered with the *Erica vulgaris*. Here live in scattered villages a great number of bee-keepers, who gain a livelihood by keeping bees; they are generally called Heath Apiarists. The greater portion of the honey sold in Germany is derived from these heaths. Their knowledge of bee-keeping has been handed down from generation to generation, and their skill in bee-keeping is so great that Berlepsch, after he visited Luneburg, declared that these apiarists were 'the most skilful bee-keepers in Europe.' We give an illustration of the hive which is used by these apiarists (fig. 1). It is of cylindrical shape with an arched top. From top to bottom the inside measurement is 18 inches and the diameter 14 inches. It is made of rye-straw, and bound with cane-strings. The wall of the hive is ½ to 2 inches, and is so strong that a man's weight will not bend it. The entrance is near the *top* of the hive; for cogent reasons which are satisfactory to their minds, the Heath apiarists would not think of having the entrance at the bottom of the hive.

Among these masters of the craft, Gravenhorst perfected his knowledge of bee-keeping. The moveable comb-hive had been already invented by Dzierzon and used by Berlepsch. It was tried by Gravenhorst, but, though admitting the superiority of such a hive to those previously in use, he considered the old Luneburg hives in some respects better. His aim was to unite the advantages of the straw-hives with those of the moveable comb hives: the transition was simple and easy; and in time he invented the hive which is called the 'Bogenstülper' (fig. 2), which he brought out in the year 1865. Dzierzon, in his *Rational Bee-keeping*, gives the following description of this hive:—

'Gravenhorst's Bogenstülper is a straw-hive, extended in length—as it were, a double hive—about as long again as wide, with corners as rectangular as possible, only rounded off above, and so, in shape, not unlike a high-arched baker's oven. It is not accessible from the side, but below, and is, therefore, quite suitably called Stülper (that which may be tilted). It is called Bogenstülper (Bogen, a bow or arch) from the form of the

frames with which it is fitted. These are of the shape represented in the figure—usually fourteen in number—in which the bees, assisted by guide-comb, build the single-combs. In the crown, under the arch, a kind of rack is placed, and the bow-frames are let into its notches. The frames are further made secure in this way: two short nails are driven into the top of the frame, coming one on each side of the rack, and below, the side-pieces are firmly fixed to the hive-wall by longer wire-nails, but these can be drawn out after the hive has been turned up; and when the two contiguous frames have necessarily been somewhat pushed aside, the frames can be taken out without difficulty, and be either replaced and made firm in the same or in any other similar hive. That no advantages may be lost, all Bogenstülpers must have a similar width, and are therefore best made upon a machine. Division-boards are necessary for limiting the room, that may be too great for a moderate-sized swarm, or for setting up a special honey-room, as well as finally for placing two or three different stocks in the same hive for the winter. These division-boards have the same size and shape as the frames carrying comb, and are similarly fitted in and fastened. Perhaps the entrances are most suitably situated at half the height of the hive, and every hive may have two—in one of the long sides, and at some distance from one another. If a third should for a short time be necessary it had better be cut on the level of the floor.'

Fig. 1.

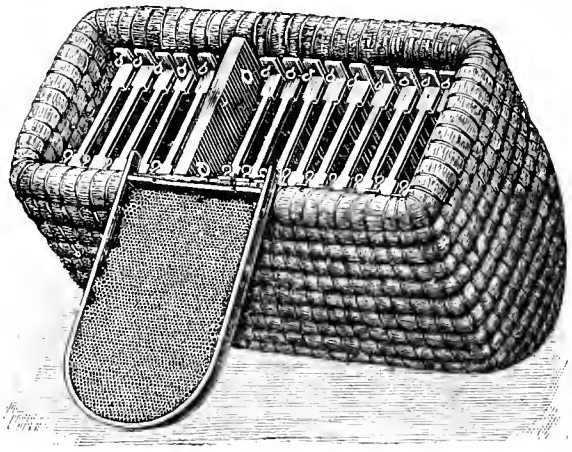
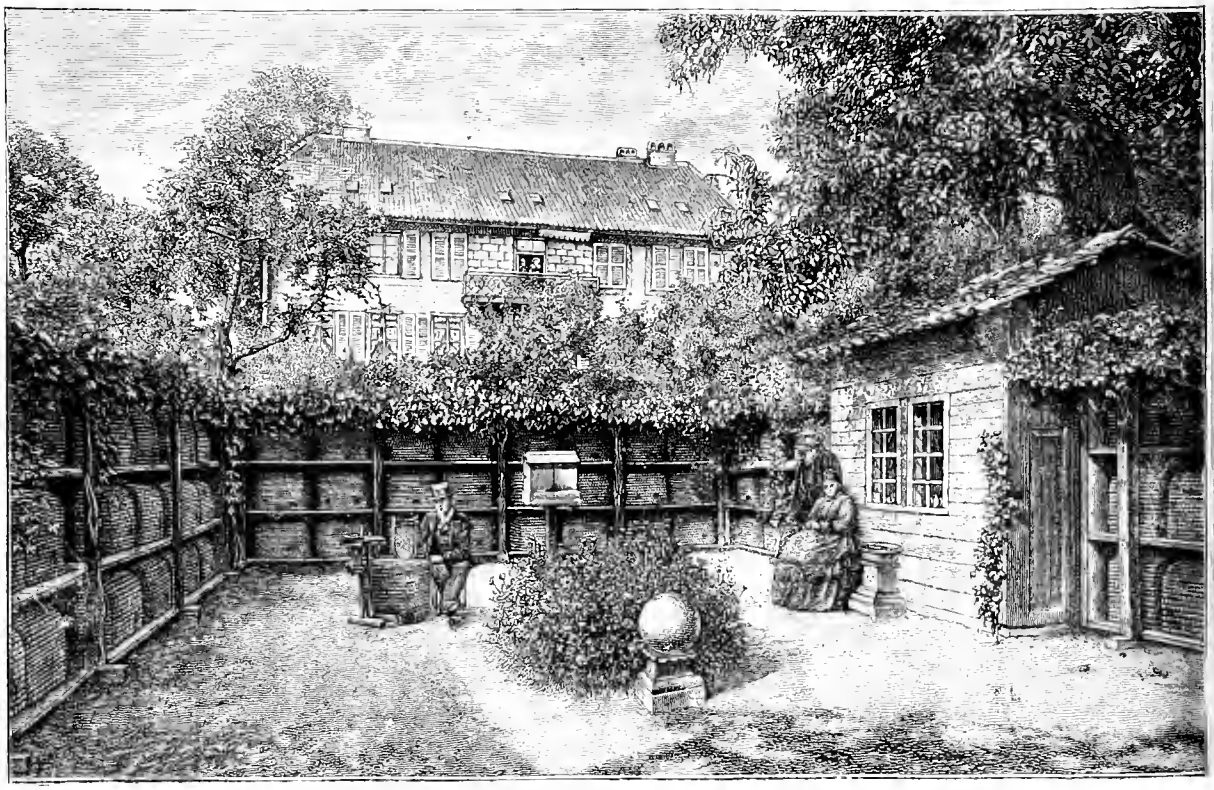


Fig. 2.

About the year 1873 Mr. Gravenhorst published the first edition of his book *Der Praktische Imker* (The



A GERMAN APIARY.

From the *Illustrierte Bienenzeitung*.

Practical Bee-keeper). This work was originally a small pamphlet, but as succeeding editions have been called for by the public, it has considerably increased in bulk, and has now attained a goodly size. The number of pages has increased from 252 in the third edition to 280 in the fourth, and the engravings from 52 to 111. Not the least interesting feature of the work is the introduction of the portraits of the most eminent bee-keepers. Amongst these are Dzierzon, Kanitz, Waygandt, Butleroff, Berlepsch, Schönfeld, Langstroth, and others. Though in this work Mr. Gravenhorst has, as we may expect, an evident bias in favour of the Bogenstülper, no less than fourteen other hives have been described, and many illustrated, such for instance as the Langstroth, the Heddon, the Cowan, and others. Mr. Gravenhorst is able both to read and write the English language, which has enabled him to study and describe the advancement of bee-keeping both in England and America, as well as in Germany.

On the 1st of October, 1883, he started a new bee-paper, *Illustrierte Bienenzeitung*, in which he gives his readers the experiences made in his own large apiary, as well as the most important improvements in apiculture in other parts of the world. The illustrations both of his *Imker* and his newspaper, some of which we reproduce in this biographical sketch, are far above the average, and show great care in their production. Mr. Gravenhorst is to be congratulated on having an artist who so thoroughly enters into the spirit of his work.

In the year 1884 he was much troubled by the opposition of his neighbours to his keeping bees. They declared that they were a nuisance, and that they must be removed. He was loth to leave the home where he had been so many years, and he contested the point, but his neighbours prevailed, and he was ordered to leave. Mr. Gravenhorst appealed from court to court, and the German bee-keepers stood nobly by him, helping him to defray his legal expenses, but the lawsuit was lost, and he was obliged to sell his old home in the city of Braunschweig. He has moved his bees to Storbeckshof, near the valley of the Elbe.

Mr. Gravenhorst visited England in the year 1879, and was present at the Kilburn Show.

BRITISH BEE-KEEPERS' ASSOCIATION.

We desire to call the attention of intending competitors for the prize pamphlet, as advertised in our columns, that the MS. must be received by Saturday next, the 14th inst.

S. J. Baldwin, The Apiary, Bromley, Kent, asks for the kind indulgence of his patrons whose orders and communications have unavoidably been neglected owing to the lamentable death of his beloved wife.

[We feel sure that all who are acquainted with Mr. Baldwin will be ready to sympathise with him in the great loss he has sustained by the death of his partner in life,—a partner of whom he speaks in a private letter as 'one whose help, apart from domestic matters, has been to him invaluable, and indeed incalculable, in business.'—Ed.]

USEFUL HINTS.

Weather.—The long-looked-for Indian summer has come at last to gladden our bees and enable them to get strong before winter. Heavy plumping rains have fallen in some districts, accompanied in some instances by considerable electrical disturbance. Curiously enough, the week ending September 2nd bore great resemblance, as far as a sudden and unexpected improvement in the weather was concerned, to the corresponding period, 27th of August to 2nd of September, 1886. Bees are very busy, especially on the scarlet runner beans, resulting in a remarkably good set and the consequent prospective harvest. The burly 'humble' bee is also a frequent visitor.

Feeding—Should now be the order of the day (evening). Every care should be taken to have this all completed before the end of this month. By completed we mean sealed, so that full advantage may be taken of a fine day early in October to equalise stores and pack up for winter.

Entrances.—Unless wasps are very troublesome, the entrances of strong colonies are best at full width, yet, in fact, we have kept a large proportion of ours at full width right through the winter with excellent results.

Re-queening.—Where necessity exists for this operation it *must* be done at once. Where the sulphur pit still exists young queens may be secured from such skeps that have swarmed this season, and at the same time a very useful lesson taught to the skeppist (*pace* Mr. Goodheeve).

Wintering.—Make every preparation for wintering. It is well to have at least one spare hive, let the apiary be ever so small, this can be cleaned, painted, and generally refurbished. One stock transferred into it on a fine day, and the now empty hive put the same routine in this way, a small apiary may soon be cleaned and made comfortable for winter without consuming much daylight time. It is preferable to have new quilts for winter, whether American cloth or pervious ones. Nothing equals cork-dust for cushions, and it will last good for an indefinite time, which cannot be said of anything else with which we are acquainted. Any grocer who sells the green grapes should be able to supply it. As a rule, it will be found quite dry, but it is well to examine it and pass it through a sieve to remove any decayed grapes or other refuse. The cushions should be about three inches thick. Place a quilt on top of frames and cushion on top. Securely close all draught holes by pressing the cork into the corners. Taking all things into consideration, we prefer trays having the canvas bottom put on very free, and the outsides also covered with two thicknesses of canvas. This will make the tray slide in and out easily, and yet fit close. If made with a feeding-hole these cushions are extremely convenient for early feeding in the coming spring, as either candy or syrup can be given in a couple of minutes without disturbing the bees in the least. Should any damp gain access to the cork-dust, the damp portion can be removed and fresh given with greater facility than by any other plan.

Winter Passages.—These we consider of great assistance to the bees, but we would not make them very large—say $\frac{1}{3}$ inch in diameter; they are then more likely to be built up again in the spring with worker-cells than if larger. The large ones offer a great temptation for the building of either drone comb or queen-cells, either of which the bee-keeper might not desire to have.

Sugar.—We would once more impress upon our readers that it is penny-wise and pound-foolish to use anything except the best cane sugar for feeding. Doubtless starving bees will take down the beet sugars now so common in the market, but this food will not give the best results. If the directions given in Cowan's *Guide* are implicitly followed, it will be found that the bees will speedily take down the 20 to 30 lbs. necessary for the winter and early spring supply. Give the syrup warm, say 60° to 70° at the least; the temperature of the hive will then keep it quite at that, and the vital heat of the bees will not be consumed in warming the syrup. We once tried the effect of syrup given at a high temperature. Commencing at 60° we increased by 5° at a time, and found the bees take it with the greatest

avidity while at 80°, 85°, and 90°; at 95° and 100° they were rather slower in taking it—in fact, about at the same rate as when it was 70° and 65°. At 105° they were cautious, and at 110° they sat round like a council of Indian braves waiting for the next speaker. In whatever manner the syrup may be given it is necessary to carefully cover it up to conserve the heat of the colony. At no time of the year is a genial *night* temperature more imperative than now, because we have a declining temperature, and every day lost is therefore of serious importance. It is this contingency that urges us to be well forward with our preparations for winter, lest bad weather intervene, and we find it impossible to get finished up. Before our next 'U. H.' appear in print feeding should be completed, and we would advise giving quite 30 lbs. to each colony; it ensures us against the necessity of disturbing the bees in the months of January and early February. We consider March 21st quite early enough to have any fear of the bees requiring food; that is, presuming we have *properly* fed them the previous autumn.

ASSOCIATIONS.

THE SHROPSHIRE BEE-KEEPERS' ASSOCIATION.

The Annual Show and Exhibition of honey, bees, and bee-keeping appliances of this young but important Association, was held at Shrewsbury on August 21st and 22nd, and proved to be the largest show ever held in the west of England. The exhibits were far in excess of any previous year, and this is evidence of the rapid strides this Association is making. At one time the show was held in a small tent, but now a spacious and handsome marquee, 120 feet long and 30 feet wide, is scarcely adequate to contain all the exhibits and yet leave space in which to comfortably move about.

The schedule contained thirty-seven classes, and prizes amounting in value to 35*l.* were offered; 220 exhibits were entered, the honey amounting to 3200 lbs., or nearly one and a half tons. Being admirably staged with fine effect, this exhibited a most interesting if not imposing sight, and the people who visited the show could be numbered by thousands. In some cases the judges (the Rev. J. Liogen Seager and J. A. Clegg, Esq., of Loppington Hall, Salop) had great difficulty in deciding, and in several cases extra prizes had to be given. The judges considered this to be one of the best shows they had visited, and when it is remembered they had to make sixty-two awards out of 220 exhibits, it may be imagined they had a fair morning's work.

The schedule has been characterised by the highest authorities as one of the 'most comprehensive' ever produced. The open classes (4) for honey produced forty-three entries, seven of the eight prizes going out of the county. It is a noteworthy fact that in each of these the expert, Mr. S. J. Baldwin, takes honours. The county honey, however, proves its superior character in the four next classes, which are open only to members of the Association (thirty-three entries). Mr. W. G. Preece, jun., takes the blue ribbon of the meeting, the British B. K. A. silver medal, with forty-eight fine sections; and Mr. J. Palmer, late of Wrockwardine, wins the bronze medal with sixty 1-lb. bottles of beautiful flavour, Mr. Preece being second.

Valuable prizes (4*l.*) were presented for trophies of honey, and these (seven) exhibits attracted great attention. Here Mr. Preece carried off the laurels with the greatest of ease. His trophy was very much admired, and deservedly so. Mr. Bradley, of Yockleton, who also won in the novelty class with a capital '1889' in honeycomb, took second, while a special third was taken by Mr. Whittingham.

The appliance classes were exceptionally well filled. In class 14 (collection) Mr. Baldwin took first, and so closely did Mr. Whittingham run Mr. W. P. Meadows, of Syston, that an equal second was awarded him.

Bees as usual attracted immense attention. Mr. Preece took the three firsts, Mr. Rodin being twice second.

The artizans' and cottagers' classes were not so well filled as was hoped, but the disastrous summer of 1888 may account for it, the losses then sustained still being unfilled up. Only twenty-seven entries were received for seven classes and fifteen prizes, considerably over half the exhibitors taking prizes.

The latter part of the schedule, viz., bee flowers, honey beverages, confectionery, &c., was fairly filled, while no less than eleven entries (Salop only) put in an appearance for bees-wax.

The object-of-interest class produced two very attractive and interesting objects, viz, a wasp's nest in between five bar-frames of old comb, and the hundredth part of a bee's eye under the microscope, the latter being prepared by Mr. W. G. Preece, taking also first prize. It attracted endless attention until the supply of oil for the lamp was exhausted.

At intervals during the two days Mr. S. J. Baldwin, the expert of the B. B. K. A., gave important illustrated lectures, the tent specially provided being filled to overflowing on every occasion. The descriptions given were divided into three heads, viz., Bee-keeping for the amateur, for the cottager, and as a profitable industry. Mr. Baldwin was frequently complimented and applauded for his lucid and well-delivered lectures; and although his spirits might have been slightly '*damped*' by the weather, it was not apparent in the '*warmth*' and interest taken in the lecture tent.

No institution is complete without a secretary, and we have little hesitation in saying that no two secretaries deserve praise more than Miss M. E. Eyton and Mr. W. G. Preece. The former has worked in the most indefatigable manner to keep up the position of the Association, and the latter has devoted his energy to the successful issue of the Show.

HONEY CLASSES.

Open.—Forty-eight 1-lb. sections of comb-honey. 1st, A. Godman, St. Albans; 2nd, S. J. Baldwin, Bromley, Kent. Twelve 1-lb. sections of comb honey. 1st, Mr. Hamer, Knighton; 2nd, H. Wood, Paradise, Lichfield: Mr. S. J. Baldwin, commended. Forty-eight 1-lb. bottles of run honey. 1st, H. Wood; 2nd, S. J. Baldwin; E. Wood, Wellington, commended. Twenty-four 1-lb. bottles of run honey. 1st, S. J. Baldwin; 2nd, H. Wood; G. R. Jones, St. Martin's, commended.

Members of the Shropshire Bee-keepers' Association only.—Forty-eight 1-lb. sections of comb honey. 1st, W. G. Preece, jun., Shrewsbury; 2nd, Mr. Bradley, Yockleton; S. Cartwright, Shawbury, commended. Twelve 1-lb. sections of comb honey. 1st, T. R. Horton, Harley; 2nd, S. Cartwright; A. Beale, Meole Brace, commended. Sixty 1-lb. bottles of run honey. 1st, J. Palmer, Ludlow; 2nd, W. G. Preece, jun.; S. Cartwright, commended. Twenty-four 1-lb. bottles of run honey. 1st, S. Cartwright; 2nd, T. R. Horton; A. Beale, commended. For the most attractive novelty in honey. J. Bradley, Yockleton.

HONEY TROPHY.

Open.—For the best and most attractive display of honey, &c., on a stand or trophy, to be arranged upon a space provided, 4 feet by 3 feet, not to exceed 4 feet 6 inches above the stage, or 60lbs. weight honey; quantity to be stated. 1st, W. G. Preece; 2nd, J. Bradley; 3rd, J. Whittingham.

HIVES AND APPLIANCES.

Open.—For the best hive, suitable for modern bee-keeping upon the most approved system, with wintering

arrangements, price not to exceed 15*s.* complete. 1st, Turner & Sons, Oxford; 2nd, T. Whittingham. For the best hive as the foregoing, price unlimited, but to be plainly marked on hive. 1st, T. Whittingham; 2nd, S. J. Baldwin. For the best hive as Class 12, confined to Shropshire makers. 1st, J. Carver, Street Lane, Wellington; 2nd, J. Palmer, Ludlow; Mr. Bradley, commended. For the best collection of apiarian appliances, on stage provided, about 25 feet run by 2 feet wide. 1st, S. J. Baldwin; W. P. Meadows and T. Whittingham, equal for second. For the best honey extractor. 1st, W. P. Meadows, Syston; J. Whittingham, commended. For the best feeder, slow or fast action. 1st, T. Whittingham; and a special prize was awarded to Mr. Palmer for the new invention of a bee-shutter to window. For the best section rack. 1st, T. Whittingham; W. G. Preece, jun., commended. Best 1-lb. sample stock foundation. 1st, J. H. Howard, Peterborough. Best 1-lb. sample super foundation. 1st, J. H. Howard. Best two samples of hard and soft candy. 1st, S. J. Baldwin.

Bees.

For the best exhibition of live foreign bees with queen, to be secured in observatory hive. 1st, W. G. Preece, jun. For the best exhibition of live English bees, with queen, as foregoing. 1st, W. G. Preece; 2nd, J. E. Roden. For the best exhibition of live Carniolan bees with queen, as foregoing (restricted to county of Salop). 1st, W. G. Preece, jun.; 2nd, J. E. Roden.

Artisans' Classes.

For the exhibition of not less than 24lbs. comb honey. No exhibits. For the best twelve 1-lb. sections of comb honey. 1st, A. Beale; 2nd, E. Jones, St. Martin's. For the best exhibition of not less than 24lbs. run honey. 1st, J. Shuker, Allscott, near Wellington. For the best exhibition of comb honey in any kind of super. 2nd, Mr. Beale.

Cottagers' Classes.

Twelve pounds of comb honey. 1st, Mr. G. Bradley, Wigmore. Six sections of comb honey. 1st, G. Bradley; 2nd, J. Walford, Grinshill. Twelve pounds of run honey. 1st, T. Clarke, Overley; 2nd, J. Evans, Leaton; 3rd, J. Walford.

Miscellaneous.

Bee flowers. 1st, W. Pritchard, Frankwell, Shrewsbury; 2nd, T. Whittingham. Honey beverage. 1st, A. Beale. Preserved fruit and honey. No exhibits. Honey confectionery. Miss F. E. Preece. 3lb. sample of beeswax (Salop only). 1st, J. Roden; 2nd, M. Evans, Leaton. Object of general interest to bee-keepers. 1st, W. G. Preece, jun.

The prizes were presented to the successful exhibitors at the close of the show by Miss Watson, daughter of James Watson, Esq., M.P. for the Borough of Shrewsbury. Thirty-five silver and bronze medals, besides money prizes, were displayed before Miss Watson, who distributed with a few kind words to no fewer than sixty-two recipients. At the close of the proceedings the Rev. Donald Carr proposed a vote of thanks to Miss Watson for her kind attendance on that day, such being all the more appreciable from the wet and unfavourable state of the weather. He trusted she had been pleased with the exhibition, and that it might tend to increase the interest she evinced in bee-keeping matters. The proposal was seconded by Miss Eyton, and carried with acclamation. Mr. Watson in reply said, he thanked those present for the kind manner in which they had passed a vote of thanks to his daughter, who was pleased to be of any service to the Shropshire B.K.A. For his part he felt immensely interested in all he had seen. He believed the Association was doing good work in furthering the knowledge of bee-keeping. Considering the immense amount of foreign honey continuously imported, he thought that with our beautiful country producing so much good bee-pasturage, we ought to endeavour to supply our own market, and consume our own produce. Undoubtedly the industry when intelligently worked and carried out was a profitable one, and the fine show of that day might be taken as evidence of the splendid quality of the Shropshire honey. He hoped many others would take up the industry. Mr. Watson then paid a high compliment to Miss Eyton for the untiring energy she evinced in all matters pertaining to bee-keeping. He believed it was entirely owing to Miss Eyton's action that the Association held the high position it did, and he concluded by proposing a vote of thanks to her. This was seconded and carried unanimously.

Miss Eyton said in reply that she was only too glad to assist the industry. She was sure that if perfectly taken up by the cottagers and artizans it would be the means of improving their condition. She stated she had just organized an examination at Seaton, and eight candidates had received experts' certificates. She hoped to receive the names of many more as members of the Association, and that all would interest themselves for the general good.

Mr. Preece, the local Hon. Secretary, then presented Miss Watson with an ornamental jar of honey, as a souvenir of the day, which was kindly accepted, and the proceedings terminated. Many of the Vice-Presidents, including the Mayor and Mayoress of Shrewsbury, were present, as well as a large number of the local magnates, who took considerable interest in the Exhibition.

SURREY BEE-KEEPERS' ASSOCIATION.

The eleventh Annual Show of bees, hives, honey, and appliances of the Surrey Bee-keepers' Association was held on the 4th and 5th September in conjunction with the Frimley, York Town, and Camberley Horticultural Society's Exhibition in the grounds of the Governor of the Royal Military College. The weather was magnificent and the attendance very good. The tents were thronged, and a great interest was taken in the manipulations and lectures given in the elegant little tent of the Association, which was decorated with flags and pennants and open free of charge; great interest was excited in the proceedings. Above 3 cwt. of very fine honey was shown, which met with a ready sale, both in comb and extracted, in the honey fair, while in another large tent a display of beehives and appliances was exhibited by Mr. W. B. Webster, of Binfield, who also exhibited an observatory hive stocked with bees.

Several stocks of bees were exhibited in hives of various description; and during the first day W. N. Griffin, Esq., of Reading, held examination of two candidates for third-grade certificate as experts, and also officiated as judge of the various classes of exhibits. The following were the awards:—

Class A.—For best stock of bees in observatory hive: Mr. Webster, 10*s.* Class B.—For best stock of bees in bar-frame hive: 1. Mrs. Tickner, 15*s.*; 2. W. Jones, York Town, 10*s.* 6*d.* Class C.—Best stock of bees in straw skep: W. Jones, 12*s.* 6*d.* Class D.—Best 6 lbs. honey in 1-lb. sections:—W. A. Maspero, Leatherhead, Silver Medal; 2. L. Inwood, Effingham, 10*s.* and certificate of B.B.K.A.; 3. T. Wollaston, Reigate, 7*s.* 6*d.* and certificate of Surrey B.K.A.; highly commended, Mr. F. Fletcher, Chertsey. Class E.—Ditto, for cottage members only: 1. W. Jones, Bronze Medal of B.B.K.A.; 2. A. Millar, Egham, 7*s.* 6*d.* and Cowan's book on Bee-keeping; 3. G. Denyer, Guildford, 5*s.* Class F.—For cottagers not members; best six sections (1-lb.) or other super of honey: 1. H. Witt, S. Ascot, 7*s.* 6*d.*; 2. Norah Jones, York Town, 5*s.* Class G.—3 best 1-lb. bottles of extracted honey (for Surrey cottagers only): 1. W. Jones, 7*s.* 6*d.*; 2. A. Millar, 5*s.* Class H.—For cottagers not

members; best three bottles of extracted or run honey (not less than 3 lbs.): Norah Jones, 5*s*. Class I.—Best six 1-lb. bottles of extracted honey: I. L. Inwood, 12*s*. 6*d*.; F. Fletcher, 7*s*. 6*d*. and certificate of Surrey B. K. A.; 3. Mrs. Tickner, 5*s*.; highly commended, F. Leman. Class K.—Best collection of hives and appliances: Mr. W. B. Webster, 20*s*.

PETWORTH AND DISTRICT FLOWER SHOW.

The above show was held by kind permission of Lord Leconfield, in Petworth Park, on Wednesday, September 4th, and in connexion with it prizes were offered for honey as follows:—For not less than 6lbs. of comb honey: 1, 5*s*., T. Mitchell; 2, 3*s*., H. Hoad; 3, 2*s*. W. J. Smith; 4, 1*s*., A. Lee. For not less than 1lb. of comb honey: 1, 3*s*. T. Mitchell; 2, 2*s*., H. Hoad.

Owing to the small encouragement offered in the way of prizes, the number of entries was small, but the quality of the exhibits was very good. A movement is on foot to obtain a better recognition of the claims of this branch of horticulture, and with this in view two local bee-keepers staged larger and more varied exhibits than the prize schedule specified in order to show what can be done in this way.

The exhibits in these cases include an observatory hive stocked with bees, sections of different sizes, neatly labelled and capped bottles of various kinds and shapes. The weight staged would reach about 120 lbs. The rector of the parish, Rev. C. Holland, officiated as judge of the honey.

CASTLE DOUGLAS SHOW.

The annual Show of flowers, fruit, honey, and dairy-produce, took place on the 29th August, in the Town Hall, Castle Douglas. This event was looked forward to with unusual interest in this part of Scotland, and even further afield. In every section there was keen competition, and the premiums offered for honey being very handsome induced many to enter the lists from all parts of the kingdom. Canada was also said to be represented in the honey classes. Some time ago, it will be remembered, a controversy raged in the *British Bee Journal* on the superiority of Borgue honey over that produced elsewhere, some maintaining that Borgue honey was superior to that produced in other parts, while others maintained an entirely different opinion. To decide this question the Castle Douglas Show Committee decided to have some honey classes open to the world, in which the qualities of Borgue honey could be shown alongside that from other districts. Strange to say, however, Borgue did not compete, or at least was poorly represented, as it did not figure in the prize list. It is to be hoped that another season will bring out more competitors, and that these open classes for honey with liberal prizes will stimulate a healthy rivalry in the bee-keeping industry. The display in the open classes was of a most superior nature, and in the class for three 1-lb. jars of honey the judges experienced the greatest difficulty, so even was the quality, which is saying a good deal when it is considered that no fewer than forty-seven entries were staged in this class, and it took the judges fully an hour and a quarter to decide; first prize going to Mr. Richard McNally, Longforth, Glenluce, Wigtownshire; second, to Miss Hogg, Station Road, Castle Douglas; and third, to Mr. Ross Muir, Longcastle, Wigtownshire. A special prize was also here given to a sample of splendid heather honey in this class, but had no other competitor in heather; this was exhibited by Mr. John Galloway, Garvillan, Glenluce. The open class for six 1-lb. sections brought out twenty-one exhibits, all of good quality. The first prize was awarded to Mr. Wm. Sproat, Laurieston, Castle Douglas; second, to Mr. R. McNally; and third, to Mr. John M'Connell, Lochans, Stranraer. All the other classes were well filled, the entire entries being 118, and in addition Mr. W. Hogg had on exhibition an observatory hive stocked with bees, which attracted considerable attention. The judges were Mr. T. W. Cowan, Editor of *B. B. J.*, Rev. J. M. Sandilands, Urr Manse, Dalbeattie, and Mr. Wm. McNally, Glenluce, whose awards gave every satisfaction. Below is prize list:—

Honey.—Honey design.—1. S. Roebuck, Troqueer; 2. Miss Chisholm, Troqueer Cottage. One super under 20 lbs.—1. Wm. Hogg, Castle Douglas; 2. S. Roebuck. Scotch pint best dropped heather honey.—1. Mrs. J. C. Bell, Dalbeattie; 2. Wm. Sproat, Laurieston. Special: Mr. Agnew, Lochryan House, Stranraer. Six 2-lb. clear glass jars dropped honey.—1. Wm. Hogg; 2. J. Currie, Springholm. Six 1-lb. clear glass jars honey.—1. J. C. Graham, Gatehouse; 2. Wm. Sproat.

Classes open to the World.—Three 1-lb. jars of run or extracted honey.—1. Richard McNally, Glenluce; 2. Miss Hogg, Station Road, Castle Douglas; 3. Ross Muir, Longcastle, by Whauphill. Special: John Galloway, Glenluce. Six 1-lb. sections of honey-comb.—1. W. Sproat, Laurieston; 2. R. McNally, Glenluce; 3. J. M'Connell, Stranraer.

WIGTOWNSHIRE BEE-KEEPERS' ASSOCIATION.

The seventh annual show in connexion with this Association was held yesterday* in the Old Town Hall, Stranraer. The entries were fairly numerous, only being exceeded on one former show held by the Society. The honey staged at the show was a fine lot taken all through, especially the run honey and heather run honey. The supers were also good in the various classes. There was a good display of bee-furniture shown by Messrs. Ross, of Stranraer Reformatory, and M'Nally, Glenluce. There were also two observatory hives displayed in centre of room. The judges were the Rev. J. M. Sandilands, Urr Manse, Dalbeattie, and Mr. R. M'Nally, Langforth, Glenluce, whose decisions gave the utmost satisfaction. It may be mentioned that neither Mr. W. M'Nally nor the Secretary were competitors. The whole arrangements were admirably carried out by the Rev. J. Balfour Robertson, the Secretary. The following is the prize list:—

Open Classes.—For the best display of honey.—John M'Dowall, Lochans. For the best 24 lb. sections, 4¼ by 4¼, any width.—John M'Dowall. For the best twenty glass jars of run honey.—1, Mrs. M'Douall, of Logan; 2, J. M'Dowall; 3, J. Wither, Lochans. For the best sample of beeswax, over 2 lbs.—1, James Fleming; 2, W. H. M'Dowall, Kirkcowan.

Confined to Wigtownshire.—For the best super under 12 lbs.—1, George Milne, Castle-Kennedy; 2, John Muir, Castle-Kennedy; 3, J. Fleming. For the best super comb heather honey, under 12 lbs.—1, John Muir; 2 and 3, J. Fleming. For the best twelve sections heather honey.—1, J. Fleming; 2, J. Muir. For the best twenty-four 1-lb. sections.—1 and 2, J. M'Dowall. For the best twelve 1-lb. sections.—1 and 2, J. M'Dowall; 3, W. Agnew, Lochryan House. For the best six sections over 1½ lbs. each.—1, J. M'Dowall; 2, J. Muir; 3, W. H. M'Dowall. For the best twelve glass jars run honey.—1, Mrs. M'Douall; 2, J. M'Dowall; 3, J. Wither. For the best twelve glass jars heather honey.—1, J. Muir; 2, W. H. M'Dowall. For the best six sections.—J. M'Dowall, medal.

Cottagers' Classes.—For the best super of honey.—Wm. Downie, Castle-Kennedy; 2, John Ralph, Barnultoch; 3, Wm. Grey, Pinwherrie, Inch. For the best twelve jars run honey.—1, John Craig, Logan; 2, Wm. M'Kie, Duchra.

* We should be much obliged if correspondents in forwarding cuttings from newspapers would take the trouble to ascertain and transmit correct date, which, both for information and reference, is decidedly desirable.—Ed.

IRISH BEE-KEEPERS' ASSOCIATION.

The Committee met on the 3rd instant. Present:—Rev. P. Kavanagh, in the chair, Mr. Gillies, Mr. Read, and the Hon. Sec. It was decided to purchase two new cylinder extractors for the use of Members, each capable of holding two combs at a time, and of being easily worked. It was resolved to hold an examination for experts' certificates on or about the 26th inst. Messrs. Sproule and Read to be examiners.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (see 2nd page of Advertisements).

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of August, 1889, amounted to 1981*l*. From a return furnished by the Statistical Office, H.M. Customs, to E. H. Bellairs, Wingfield, Christchurch.

THE MORALITY OF THE BEE TENT.

[2290.] An anonymous correspondent—see p. 348—even though he styles himself 'an enthusiastic bee-*deeper*,' might have his remarks passed over, and outsiders might have left the lecturer at the Glamorganshire show on the 1st of August, to settle the imputation conveyed in such expressions as 'conceal the truth,' and 'wrong,' 'unjust,' 'immoral practice.' But when he attacks the 'utility of the bee tent altogether,' and would put a stop to the spread of bee-keeping, I as a bee-keeper, not like 'East Glamorgan,' of 'a few years,' but of forty years' standing, must reply to the general question.

I do not know what happened at the Glamorganshire Show; perhaps one of those accidents beforehand against which no care or precaution can guard. However, if the bees present on the occasion referred to were not docile and could not be handled after having been driven, without stinging the operator, it was one of those rare exceptions which my experience has not yet brought me in contact with.

I have, while lecturing in the Ulster Bee-keepers' Association tent at numerous shows in the north of Ireland, driven bees over and over again, and been present when many other bee-keepers did the same; yes, and as late in the season as the third week in September, and we have never been stung except when a bee was accidentally crushed in some way. And I have taken up handfuls of the driven bees out of the skep, and got ladies to take up handfuls of them by putting their ungloved hands through the lacing of the net curtain of the tent, and without ever receiving a sting. The ladies were not bee-keepers, but were interested in the natural history of the insects, and wished to see and learn all they could about them. I have, moreover, been present when Messrs. Abbott, and Carr, and Grillin, have driven bees in the tent, and they found the bees as docile as I have done, since the first-named taught me how to do it.

Those who have no experience of the operation and see it for the first time are always ready to cry out 'humbug' and 'deceit.' I heard ignorant people do so when Messrs. Abbott and Carr took up handfuls of bees. 'Oh, he's well stung, but he won't confess it.' And I have been laughed at, by 'novices to the tent and the management of bees,' when bees were creeping in hundreds over my face and hands as I was fingering amongst them on a newspaper to find their queen, because I said what was true, that I had not been stung.

I am convinced that your correspondent either has never driven or seen bees driven 'at home,' as directed in Chapter 7 of *Modern Bee-keeping*, in fact he knows nothing about it, for it is much easier and safer to drive a stock at home and in its full strength, than to drive a stock depleted by the losses incidental to a show-yard. But the strangest of all this writer's statements is, that after having insinuated that the lecturer got badly stung in the Glamorganshire show-yard, he alleges that when a stock is driven in a show-yard the driver 'would find a difficulty in getting a bee to show temper at all!'

To what am I to attribute 'East Glamorgan's' mistakes, to call them by no severer name, to ill-humour at having been a disappointed exhibitor at the show where he 'found his way to the bee tent,' presumably, for the first time: but I find in the concluding paragraph of his letter the secret of it all. And these are the words: 'It appears to me that in the face of the inevitable fall in the price of honey which another good season or two will bring about, it is highly injudicious to increase our numbers,' that is, the number of bee-keepers. It is evident that 'East Glamorgan' would like to have a monopoly of producing and selling honey. Now, only that he writes under such a Welsh soubriquet I might have mistaken him for a certain tradesman resident in Ireland who blames the Bee-keepers' Association with taking the business out of his hands; that, whereas, before they were started, he was the only shop-keeper in his town who kept Irish honey on sale and could get what price he liked for it, now nearly every grocer in the same place deals in it.—H. W. LETT, *Aghaderg Glebe, Loughbrickland, Co. Down.*

IN THE HUT.

'A jolly place,' said he, 'in times of old!
But something ails it now: the spot is cursed.'
WORDSWORTH.

[2291.] Yes, cursed with an awful enforced silence; for with a strong stock of bees working in a glass hive within the hut, the quiet necessary for their well-being may not be broken by the shakes and noises of visiting huttites. So, for our chats we have betaken ourselves to 'fresh *woods* and pastures new.' The bees must give place, though, this fall; the whole hut is too expensive as a single hive, and the bees kept us out all winter for fear of our disturbing their naps. By the way, I was shown a capital hut a few weeks ago, the trysting-place of the Goole District Bee-keepers' Association, and I thought what a fine thing it would be if every young society could pitch upon some similar spot wherein to congregate, after the manner of that excellent society described by the King of Roses (S. Reynolds Hole), in his delightful book, *Six of Spades*. More of real good might be got over an earnest chat about bees at such meetings than by much reading.

I observe Mr. J. D. McNally mentioned 'X-Tractor' a few weeks ago. I may be permitted to say to him through this column that I have recently communicated with the chairman of the meeting to which attention is drawn when speaking of Borgne honey, and I understand that had he been reported *verb. et lit.*, it would have appeared that this too-much-bepraised honey probably owed its quality to some peculiar blend, perhaps distinctive of flower and heather. I quite agree that a good deal of what distinction Borgne honey has is owing to its being got at a place with a funny, foreign-sounding name; the honey has, so to speak, a continental twang about it, it has become slightly 'Narbonnised' (BORGNE—one-eyed—French.)

Those bee-keepers who live in the northern parts of of our isle, according to some undoubted authorities on the flavours of honey, undoubtedly get a more pronounced flavour of any distinctive crops, for nearly all herbs will be found to secrete stronger (if more crude and rank) active principles when grown under hard, bleak conditions, but it has yet to be shown that greater *delicacy* is yielded by plants of the same species when grown under somewhat adverse conditions. Clover, for example, varies where I live with the season, but if it *improved* as we went north, it would be uneatable. The same may be said of heather on the same moors. This year it is magnificent; a few years ago,—well, it was so strong as to be compared to old corduroy in odour, and was nearly sickening, although I could not say with Coleridge—

'I counted two-and-seventy stenches,
All well defined, and several stinks.'

I was present at a meeting some time ago when Sunday was alluded to as a day favoured by the bee-keepers of France (we all know how fond the *bees* are of Sunday swarming!) and could we but take a census of British bee-keepers, I wonder how many could say they had never 'looked through'—

'Upon the day that comes betwixt
A Saturday and Monday.'

'X-Tractor' fears he has compounded for this sin, if it be such, in sweet, well-simulated simplicity. We may go to St. James's Hall and hear a full orchestra play a march from *Tannhaüser*, and 'the Lost Chord,' on Sunday evening; then, please, may we not open a bee-hive and give a little more room, instead of having the usual nap, especially as we work till seven or eight from seven or eight on every day but Sunday?

'Hail, Sabbath! thee I hail, the poor man's day.'
GRAHAME.

This year I took shallow frames with half sheets of super foundation, fixed up over brood-nest (thin foundation undrawn out) for the heather honey. Well, one day this week (I won't say which), the sight of the slabs of comb, of perfect purity and points, would have been a treat, even for the prophet of shallow frames himself, and, strange to say, no brood up in any hive but one, and that had sections on.

It is well admitted, I think, on all sides, that honeys of strong distinctive flavour disagree with different people, though only in small proportion: when such be the case, a mixture of honeys will almost surely be found to agree.

Returning to our moors (I wish we were returning from them—oh! the dark, drear home-coming!), the year 1889 promises to yield twenty pounds per hive surplus, without counting the many well-filled brood frames we shall take out for spring feeding, for nothing puts the bees in such good heart and gives them such 'vim,' as a frame of heather. Heather honey to the bee is like a thistle to a donkey; it can make it use both head and heels.

It is not a joke, after all, that 'one's own bees are so different to other people's,' for I have slowly and regretfully come to the fixed conviction that the bees in my district are not near so 'tame' as any I handle elsewhere. The indigenous bees had been contaminated by the drones of an imported Syrian matron, and to mend the matter I added my quota by a consignment of big bees from Ghent; then we swore fealty to each other, promising to import nothing from anywhere, not anything from nowhere, without the general consent: yet we still have marked queens crop up, and occasional lots of large bees with highly-developed stings, and having a distinct preference for swarming on the Sabbath. Mem.—Should not the lofty ideas of Carniolans on the subject of swarming lay them open to a charge of high treason (high-trees-on) against the Queen?—X-TRACTOR.

CHLOROFORM.

[2292.] My experience of chloroform has been that it is perfectly satisfactory in joining swarms to stocks. It has prevented swarming when used once a-week at the first symptoms; but the results have not been satisfactory in 'honey-take.' It remains, however, doubtful whether chloroform was to blame, as in cases where none was used the weakest stocks in spring proved the most productive, and May swarms have done remarkably well. The chloroform was used on a spring in a clean smoker at the entrance of the hive till three bees came out rolling.—OWEN B. TYLER, *near Wootton Vicarage, Shepton Mallet, September 6.*

INDUSTRIOUS WORKERS.

[2293.] Your correspondent, 'C. R. S.' (2277), wonders how Mr. Kempe secured as much as 81 lbs. honey from a single hive, besides 50 or 60 lbs. left in body. Perhaps it may interest him and your numerous readers if I give an account of the doings of one of my lots this year.

Well, then, to commence with, I bought a stock in a straw skep, with a '88 queen late last year for 8s., and as they were rather light, on getting home cut a hole in top, and kept thereon a cake of candy, renewing same from time to time until end of March, when they were regularly fed with half pint of syrup every night, as per instruction in *Journal*. On the 2nd of June a good swarm issued, which was at once hived in a ten-frame hive on full sheet foundation. In a week all were drawn out. Then I put on a doubling body, with eleven frames and full sheet foundation as before. This was quickly taken possession of by the bees, and in a fortnight afterwards, or three weeks from swarming, extracted 40 lbs. from top body, returning empty combs; and again, in another fortnight, 40 lbs. more Ten days after, the weather being unsettled, decided to take all they had in top body, which amounted to 22 lbs., or 102 lbs. in all, of splendid honey. Since then weather has been so stormy they have done practically nothing until two days ago, when weather improving, they are now busily storing from a field of grazed white clover in full bloom near.

I think this must be an exceptional case, as another swarm hived next day from a similar skep, with queen same age, and treated in same way, has not given half that quantity. I well remember last year, on paying a visit to Mr. Howard, of Holme, when about commencing, the incredulous smile he provoked by telling me a good swarm would store 50 or 60 lbs. of honey in a good season; but this proves the expert was right.

This being my first year, I have every reason to be satisfied, having obtained nearly 6 cwt. of honey from nine hives; but still, were all my swarms to yield 100 lbs., I should find my purse a little bit heavier at end of season. I should add, I have no idea how much this swarm may have stored in body, never having removed top storey or lifted off excluder, but have no doubt they have enough to carry them through the winter.—W. N. LEY, *Easton, Stamford, August 9th.*

P.S.—The swarms here referred to are pure natives. We have seen a great deal in *Journal* respecting prolificness of Carniolans, but very little as to results in honey from them. Will some of your readers kindly give us quantity of honey gathered by their Carniolan stocks this year?

A BICYCLE RIDE FROM ASHINGTON TO WOOLER.

[2294.] With your kind permission I beg to give your readers a descriptive account of the bee-keepers' losses and gains throughout the winter, spring, and summer in this part.

I might, in the first place, say that in the Bedlington district the winter losses were slight until the spring commenced, and a good many of the hives, with not sufficient stores, then dwindled down until there were few remaining bees, which were just pounced upon by some of the other bees that were seeking food. I might say that the losses were great. And as to the swarming, the bees not having sufficient stores it made them rather weak, and a good many were not able to swarm, especially in bar-frame hives; straw skeps came off wonderfully well, but not extra strong.

Next we come to Ashington, it being almost in the same position as Bedlington. Some bee-keepers totally cleaned out, others by care and attention were able to have a few good well-stocked hives for the Moors.

Ellington: great losses in the spring; robbing very rife, but good results farther on, in fact Ellington will be able to say that they are second to none for swarms. Why should the results not be good, as the village itself stands in a well-secluded place with plenty of early flowers and small plantations dotted here and there?

We next wend our way to Rothal, the Northumberland seat of the Duke of Portland. This little village is magnificent. I am sure no one has done justice to the splendid scenery by a flying visit. I am sorry to say, again, that with an apiary of thirty-two stocks it had decreased to the small number of eight. Swarms have been few. And as to Pigswood, persons having as many as six or or eight stocks all died out, but being determined to keep on with bees, bought in again, and these have done well.

Morpeth: I will gently leave the bee-keepers there to speak out for themselves, but my record, as far as I have heard, is that it is not without its losses. I believe that Morpeth was giving itself credit for having an association. If it has—which I hope it has—no one outside of Morpeth knows it. It is a most central place, and I am sure if such an association were commenced it would work a great benefit among the bee-keepers.

Next we paddle on at a good speed, up-hill and down, for about seven miles, till we arrive at that old place, Long Horsley. This place does not possess many bee-keepers, but some of them have had no swarms. We stop short here, and make our way to Long Framlington. There again no success to record, only to say that they have no bees left. There is something to be said both for Long Horsley and Long Framlington, *i.e.*, in conjunction with their Flower shows they have a few classes for best sections and best skeps of honey. If I am not mistaken these two latter named places are at the best seasons always late of getting their swarms; it being moory land, flowers are few and late.

Next we go at a rapid speed to Long Framlington Gate House, and, might we say, the stopping place for many bee-keepers, as I am told one man has taken his bees there for over twenty-six years. It is most interesting to see the background covered with all kinds of skeps and hives of every make and description. Farther up the heathery hill-side the herd speaks of the place with delight and says, pointing, 'That is Mount Pleasant, a *famed* place for bees.' Where you place your bees is in front of a large hill covered with heather. Your stand faces east and south-east. When the west winds are high you may still have the pleasure of seeing your bees working upon the lower parts, the least disturbed by the winds. The quantity of hives set down will be given another time.

We mount our iron steeds, and then have a long run to make inquiries at Powburn. There losses again, and just looking for the first swarm. Not much more to see till we get on our road to Wooler, a nine miles' good spin. Wooler soon in sight, and a pleasing prospect of having a few days to look round among the bee-keepers. First of all I made my acquaintance with a very old hand. He told me some curious tales about bees, but he said that his sight was getting dim, and he could not watch them as carefully as he had done. I asked if he had had any died. 'Yes,' was his reply, 'I had part died in the spring, and I never have had a swarm yet, and they must go to the moors next week.' I said, 'How far do you take them?' 'Common Farm, two miles from here.' 'Well,' I said, 'they will come back again, or part of them.' 'Yes,' he says, 'but I put skeps down for the ones that come back, and take them to the moors next day, and do that for a few days. At last they stop there contented.'

I paid a visit to a few more, and the result was the same old tale—part dead, and few swarms. To finish up my journey. The Wooler people say that the bees travel three miles; and of all I asked what breed their bees were, no one can tell any other than they got one from a friend, and so on.—CARBONITE.

POINTS OF EXCELLENCE IN JUDGING.

[2295.] It has long been felt by bee-keepers that it would be a great advantage if in prize exhibitions of honey the judges were guided by some fixed standard as to the points of excellence in exhibits and their relative importance, instead of having to trust to their individual opinions, which may differ from those of other judges. Accordingly, at a recent conversational meeting of the Irish Bee-keepers' Association, the standard given below was drawn up, in which the various points of excellence are laid down and their relative importance indicated by the number of full marks allotted to each, the principle adopted being that, in the main, their *marketable* value should be considered. It is intended ultimately to bring the matter before the Committee, but it is thought desirable to obtain first the benefit of public criticism. I would, therefore, ask those interested in the subject kindly to state their views on the proposal, either through the medium of your columns or by private communications addressed to me.

STANDARD

For Sections.	Full marks.
Flavour	15
Get up (or preparation for marketing)	25
Colour of honey	5
Density of honey	10
Uniformity (*i.e.*, similarity between the sections that make up the exhibit)	5
Aroma	10
Completeness of sections, absence of propolis, and evenness of comb	15
Sealing (colour, completeness, and clearness)	15
	100

For Extracted Honey.	Full marks.
Flavour	25
Get up	25
Colour	5
Clearness or brilliancy*	15
Density	15
Uniformity	10
Aroma	5
	100

* Less to be taken off for candied honey or honey with air-bubbles than for honey with specks of wax.

HENRY CHENEVIX, Hon. Sec. I.B.K.A., 15 *Morehampton Road, Dublin.*

Echoes from the Hives.

Malvern, Sept. 7th.—As you so very kindly gave me your opinion on the quality of sample of honey which I sent you last week, I will give my report for the *Bee Journal*, if you think it worth a place for the encouragement of bee-keeping. The quantity is all of same quality as that I sent you, and all taken from shallow-frame supers (no bottom frames extracted). My hives are twelve, but three, from some cause or other, did not produce one ounce of super honey, and not being very much of a bee expert cannot imagine the cause. However, with the other nine I am satisfied. Well, then, on the 11th of June, I took my first honey of 19 lbs.; on 15th, 126 lbs.; on 17th, 18 lbs.; on 19th, 58 lbs.; on 20th, 52 lbs.; on 24th, 43 lbs.; on 25th, 38 lbs.; on 26th, 41 lbs.

on 27th, 9 lbs.; on 29th, 63 lbs.; on July 1st, 47 lbs.; on 2nd, 57 lbs.; on 3rd, 53 lbs.; on 4th, 38 lbs.; on 5th, 32 lbs.; on 8th, 30 lbs.; on 12th, 42 lbs.; on 15th, 37 lbs.; on 16th, 38 lbs.; on 18th, 14 lbs.; on 26th, 21 lbs.; on 27th, 6 lbs.; on 29th 30 lbs.; on 31st, 12 lbs.; Aug. 12th, 6 lbs.; on 15th, 20 lbs.; on 16th, 20 lbs.; on 17th, 30 lbs.; on 26th, 20 lbs.; on 27th, 10 lbs.: total, 1011 lbs. I have not taken any since, but have taken all the supers off and left all bottom frames for winter food. We are now having very warm weather here, with bright sun and bees fast collecting honey. I may say that my hives were strong and healthy to begin the season, my smallest hive having twelve standard size frames in bottom, and my largest fourteen frames. I may just say that my strongest hive produced 182 lbs. out of the above. Mine are all English black bees.—COTTAGER.

Meldon, Northumberland, Sept. 9.—A trip to the moors happened to fall to my lot on Thursday, the 5th inst. I picked up two friends on the way, Mr. Codling and Mr. Fenwick. We had a very pleasant drive, and, having got to 'Forest Burn Gate,' we called and saw Mrs. Jackson, which reminds me of an old sign:—

> 'Turn in at the gate, and taste of the tap;
> Drink, and be merry; keep off the strap.
> This gate hangs well, and hinders none,
> Refresh, and pay, and travel on.

Which we did. Half an hour later brought us in sight of seventy-six hives, all arranged in a line, and the pleasant hum of the bees which told us that they were doing their duty. We had a look through the hives, and found they had done well. I took 130 lbs. off with the assistance of my two friends, for my hives could not be moved with two section crates on them, being only built for one. My best hive made thirty-eight pounds of flower honey, and eighty pounds of heather, a pure black one-year-old queen. By the bye what are the Minorca queens doing just now? They seem to be very quiet.—GEORGE BRITTAIN.

NOTICES TO CORRESPONDENTS & INQUIRERS.

G. BARTHORP.—*Supposed Queenless Colonies.*—It is nothing unusual for queens to cease laying at this season of the year, especially if the colonies are well supplied with stores. Feeding slowly for a few days would induce the queen to recommence laying. It is not too late to introduce fresh queens; any time during this month, or even October, if it is warm. We could not say, from the information you give, that the colonies are queenless.

A. D.—*Heather.*—No. 2 is the variety of heather from which the bees (*Apis mellifica*) gather their stores. No. 1 is much frequented by the different varieties of humble bees; hence, no doubt, the mistake has arisen, your friends not being sufficiently conversant with entomology to distinguish the difference between the genus *Bombus* and that of *Apis*.

APIS.—*Dead Brood.*—We should judge by the description you give that the brood were not dead. You, when alluding to the presumed dead larvæ, say, 'The brood is of a reddish-black colour, with head advanced towards top of cell.' The latter is the correct position of the pupa, and the colour that of same when almost changed to the perfect insect. The only peculiarity is the fact that they are in uncapped cells; this has been noticed before by many bee-keepers during hot weather. We have seen the same, in isolated cases, in our own apiary, and in every such case the hive was in an unsheltered position, with entrance too much contracted. By this we think the inference can be drawn that the bees have left the cells uncapped, that the pupæ may have greater facilities for breathing or ventilation, owing to the abnormally close atmosphere of the inside of hive.

W. STOKES.—*Price of Heather Honey.*—Heather honey, especially Scotch, always commands the highest price in the market. A fair price this season for glazed one-pound sections retail is 1*s.* 4*d.* each. Wholesale prices may be quoted at 3*d.* less per section. Much depends, however, on the quality and finish of the comb.

R. SAUNDERSON.—*Driven Bees in Skep.*—If you can do so, insert built-out comb and feed quickly. Read 'Useful Hints' in this issue. Unless they are very strong it would be well to unite another lot to them. It is a pity you could not put them in a frame-hive, and give them built-out combs. It will be a heavy strain to them to build comb entirely.

H. FUZZLE.—*Damp Sugar.*—Yes; but scarcely so much water should be added.

R. NICHOLAS.—*Inactive Stock.*—Yes; requeen, preferably with Carniolan.

R. WELFORD.—*Combs in Skep.*—Why not cut them out and fasten into the frames with tape; the bees will fix them in a night, and then feed well and remove tapes; later on give sufficient foundation in addition so that you can have, say, six frames in each hive.

SUBSCRIBER.—*Stocks short of Brood.*—As you are assured your queens are safe you need not fear. Recent weather has in some districts seriously curtailed breeding. The present fine weather will adjust matters.

HONEYTOWN.—*Sample of Honey.*—We do not detect in this any flavour of heather, but the honey has a good flavour—something more than clover. It consists of honey gathered from a mixture of wild flowers. The quality is excellent, and perhaps 1*s.* per pound retail might be a suitable price for it. 2. Many varieties of the *Bombus* (humble bee) are found on single dahlias.

J. FENWICK.—*Hybrid Bees.*—Your new queen has evidently mated with an Italian drone. The result should be a good working colony.

MIDDLESEX.—1. *Large Cells.*—These are queen-cells, and your bees intend superseding the present queen. It is too late for there to be any certainty of her being fertilised. We should advise you to obtain a fresh queen at once. 2. *Wintering.*—If you feed 30 lbs. of syrup to bees on six or seven frames, you will find matters adjusted correctly by the bees. 3. *Drilling Hole in Bottle.*—This can be done if you moisten your drill with turpentine, and do not press too heavily. If possible, as soon as the drill-point gets just through, reverse the bottle and drill from the other side. If this cannot be done, then drill with an extra light hand to prevent cracking the glass. Before commencing to drill, make a dent with a file.

F. HUGHES.—*Sample of Honey.*—Have your bees been at work on the lime-trees? From the flavour it is just possible they have been visiting an onion patch. The flavour will go off in a week or two.

*** *Several Reports of Shows are held over till next week.*

THEFT OF HONEY.—A short time ago a quantity of honey was stolen from a hive belonging to the Rev. W. Vassie, minister of Castleton. The hive had been set out amongst the heather on Harden Hill, as is customary towards the end of the season, when the heather is in bloom, as heather honey is more valuable than clover or flower honey. It is now found that the depredators have paid a second visit to the hive, and carried off a number of sections of honey.

A PLAGUE OF BEES afflicts a newly opened railway in Central India—the Jhansi extension. When the passengers approach the Betwa viaduct they are cautioned to close the windows, as numbers of bees have built in the viaduct, and refuse to quit. The passage of the bridge is therefore most unpleasant, especially, we should imagine, for the engine-drivers and their assistants, who cannot retire behind closed windows.

THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.

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Editorial, Notices, &c.

THE PREPARATION OF COLONIES FOR WINTER.

It seems but a few days since we finished the all-important task of removing sections, yet now arises the question what to do towards preparing our bees for the approaching winter. We go into the apiary and commence a thorough examination—mind, not overhauling—of our stocks. This one wants bees; that one stores; another winter passages, and so on. Roofs of hives have become warped with the recent excessively hot sunshine, and ominous cracks are seen through which the daylight insinuatingly peeps. If that is so, what will the rain and snow do? We will first note which of the hives are deficient in population, and then consider whether it will pay best to unite to other stocks or add condemned bees. Nucleus colonies having valuable queens must be strengthened by the addition of other—perhaps condemned—bees, if we wish them to survive the winter and come out in spring in sufficient strength of numbers to give the queen an opportunity of showing her capabilities, for remember that a good queen presiding over an abnormally small colony will, to the novice, appear as a bad queen, simply from the fact that there are not sufficient workers to hatch the large number of eggs which she is capable of laying. We have at the present time several nuclei with Carniolan queens mated with Italian drones from a colony which gave over 140 pounds of surplus honey this season; such queens must be preserved; they are also worth some little trouble being expended upon them; and as the means used in strengthening such colonies is exactly the same as those taken in strengthening a weak colony, we will give the necessary directions, using a nucleus colony as an example. In the first place, the three frames from the nucleus must be placed in a hive of sufficient capacity to hold the—we may now almost term it—standard number of frames, ten. As the queen is a valuable one, the safest plan is to place her in a cage. The cage we use for the purpose is simply a piece of wire cloth $3 \times 2\frac{1}{2}$ inches, bent round a mandril (a small chisel handle), and so formed into a tube 3 inches long. At one end of the tube—which we will call the bottom—we fray out four strands of the wire, and the ends of the longitudinal wires thus left exposed are bent inwards until they almost cover the end, leaving a passage in the centre just sufficiently large to allow a queen to crawl through; we then plug the bottom of the tube with 'Good' candy, allowing it to extend upwards quite three-quarters of an inch; into the top of the tube we insert a cork.

Being thus prepared, and having three pounds of condemned bees and three empty combs ready at hand, we open the hive, and removing the cork from cage we put in the queen and replace cork, pushing a $1\frac{1}{2}$-inch wire nail horizontally through edge of cage and cork, and either place it in our pocket—the safest plan—or lay aside for a minute. Now the nucleus combs must be removed, and the bees upon same shaken into a hive—straw skep—and then replaced together with the three empty combs. The queen's cage with queen is then to be hung by means of the horizontal nail resting upon two top bars, between two of the combs which have been in the nucleus hive, as these are warm and perhaps have brood in them. The hive is then made snug with quilts, these latter having a feed-hole prepared, and cover put on. Now lay a board in front of hive, with one edge resting upon the alighting-board, as described in all manuals, to form a table, and then take the hive containing the bees from the nucleus colony, and, after uncovering the condemned bees, precipitate one into the other, and give them a good 'shake up,' after throwing them in batches—not all at once—upon the board for them to run into the hive. While they are doing this a feeder can be placed on feed-hole filled with thick warm syrup, and, if a regulating bottle-feeder is used, turned on to its fullest extent. A rapid feeder is the best to use. This manipulation is best performed in the evening—in fact, it is almost imperative to do so then at this season of the year, for reason of the robbers who will often completely upset a colony under manipulation. If it is done during the evening the bees will have sufficient quietude during the night to settle down, and be ready to protect their hive during the following day.

Where condemned bees are used the queen, if any, must be removed; this is easily done while they are running into the hive. Even if she is missed, the valuable queen being caged, no harm

can come to her, but the stranger must be removed as soon as possible before a meeting can take place between them. When throwing bees upon a board, if it is done properly in full daylight, it is almost impossible for a queen to escape detection; hence our advice to throw them upon the board in batches. The caged queen will be provided with plenty of food by the plug of candy which will be gradually removed by the bees, who will, by the time they reach the queen, be in a sufficiently amiable mood to receive her. The united colony must then be fed up to the required weight.

When purchasing condemned bees from strangers we always starve them for forty-eight hours, then give them a feeder full of medicated syrup; by these means we destroy all chance of infection if any of the bees have been removed from diseased colonies.

At the commencement of this article we advised an examination only of colonies, not overhauling. It is just at this season that queens are lost by 'balling' in considerable numbers. This is usually caused by the bee-keeper performing extensive manipulations at a time when robbers are about, or have been attacking a hive during the day. Colonies at this season do not require to be extensively manipulated, uniting being the only manipulation of this description ever required, when it is the safest plan to cage the queen in the manner advised; this will be the means of saving many a valuable colony, which will give the bee-keeper a good return next season.

APIARIST, PYROLOGIST, POMOLOGIST.

Our lamented friend, Mr. Herbert Peel, would at once have taken exception to the heading of this article. He used to say that 'apiary' and 'apiarist' are words correct enough in themselves, but too learned-looking, and too formidable, for the common folk among whom he particularly desired to disperse a love of bees and bee-keeping. But as the noble ambition that inspired him has been fulfilled in the most marvellous manner, perhaps I may be now allowed to use a word which, correct in itself, corresponds with its companions in deriving the first half of its learned length directly from the Latin language.

Before I came into Essex, I had noticed the name of Mr. W. Dance as a pyrologist, or one interested in pears. In the very valuable book (Vol. IX. of the *Journals of the Royal Horticultural Society*) on 'Pears,'* compiled by Mr. Barron, their superintendent, Mr. W. Dance appears among the Essex exhibitors of pears at the National Pear Conference at Chiswick in 1885. But Mr. Dance has also come to the front of late as a bee-keeper. He was one of the successful competitors for the trophy prizes at the recent Co-operative Exhibition at the Crystal Palace. He won also a prize for 'mead,' besides carrying off twenty-two prizes and bronze medal in the horticultural department. So I determined to make a pilgrimage to Gosfield Hall Gardens, some three or four miles from Halstead, and at no very great distance from my home, so as to 'have a talk' with Mr. Dance, who is the presiding genius there.

* Published by McMillan & Co. Mr. Barron's book on 'Apples' (McMillan & Co.) is also very useful.

Essex is commonly supposed to be very flat, and no doubt some parts of it are so, but the neighbourhood of Halstead certainly is not. Hill and dale, pasture and corn-land, are mingled in rich profusion. The River Colne winds its way through the valley; trees, many of which have been growing for centuries, especially the elm, dot the landscape on all sides. Gentlemen's seats are to be found in every direction. Among these Gosfield Hall is pre-eminent. The house itself is a charming illustration of what English country-houses often are. Large, yet not ostentatious, covered with ivy, so that its walls are hallowed, as it were, by the flight of time; with dark green lawns all around, shrubs of every sort and kind, and gardens full of fertility and beauty, Gosfield Hall looks the *beau ideal* of an English home. Here, among other interesting objects, is a row of trees planted when Louis XVIII. of France was residing at the Hall. Over these gardens Mr. Dance reigns supreme, and they indeed do him credit.

The first feature that struck me on entering the gardens was a long wall covered with oblique cordon pears. These oblique cordons I had never seen prior to a visit paid a good many years ago to the editor of the *B.B.J.* at Horsham, where I saw a number growing against a house wall. Mr. Dance has perhaps two hundred of them arranged in a row against a long high wall, just as I have about fifty trained to a wire fence in my garden. Mr. Dance highly approves of these oblique cordons. He says that the trees produce fine fruit, of good flavour and quality, although of course a large crop cannot be expected from trees with single stems. Personally I may say that the oblique cordon system is a most interesting one if a great variety of sorts rather than a very heavy crop is desired.

I fear, Mr. Editor, that I have been transgressing. Your readers are supposed to have bees, and bees only, on the brain. So, after we had finished our pears, we proceeded to the bees and the honey. Mr. Dance has not been a bee-keeper for any great time, but he knows how important is the aid rendered by the bees in the work of fertilisation. He does not, therefore, crowd all his hives together; he puts them at a considerable distance from each other throughout the garden. He assures me that the result is satisfactory. The bees are not nearly so 'vicious,' he says, as they were before. His men are not stung as they used to be; they are no longer unwilling to work near the hives. His trees, too, are loaded with fruit. Mr. Dance is a great pomologist, or one interested in apples, and his apple-trees are indeed a sight. There is no doubt that the soil of Essex in many parts is admirably adapted to apple-culture, and Mr. Dance's garden is one among many striking illustrations that I have noticed during my residence in this county. The Ribston pippin, the Blenheim Orange, Lord Derby, Ecklinville, and a large number of others, are here in all their glory. Bees are evidently among Mr. Dance's best friends. All his apple-trees, as I have said, are crowded with fruit. Like a wise man, he gathers a harvest both of fruit and of honey. He sent 3 cwt. of honey to the Crystal Palace show, and made up the trophy which won the third prize with his own hands. 'In all labour there is profit,' says the wise man. Though Mr. Dance presides over a large staff, he is not ashamed to work when work is necessary. He sold nearly all his honey at the Palace. Some of it went for fifteen pence a pound; some of it for a shilling a pound. Mr. Dance tells an amusing story about this sale. A few of his bee-friends, he says, began by asking eighteen pence a pound, whereupon their neighbours offered honey at fifteen pence, and then *their* neighbours at a shilling per pound!

Mr. Dance described to me the method he adopted in making the mead for which he won a prize. He learnt it from one of his labourers. He poured water on the cappings cut from his sections and let it stand for eight

days. He then strained the water off, boiled it for half an hour, bottling it afterwards. Unfortunately, the air was not wholly excluded, so that the mead after three years' interval was not so good as it otherwise would have been.

Among the many lovely flowers in the garden, I noticed particularly Sedum fabarium, or spectabile. This, although the bloom was going off, was covered with bees. Few autumn plants exceed this in beauty or usefulness as a bee-plant. No doubt some of your readers have observed it grown in masses at the Crystal Palace, on the rising ground round the iron archways, where in fine weather it has a very imposing appearance.

Like the rest of us at this season, Mr. Dance has found the wasps a grievous nuisance, injuring and devouring his fruit, entering his vineries, and attacking his best grapes in the most ruthless fashion. So he puts one hand-glass over another, and by just raising the lower one from the ground and enticing them into the upper glass, is able to destroy hundreds with sulphur every evening. Curiously enough, just as I was leaving home for the Gosfield Hall Gardens, I was stung on the finger by one of these 'scavengers of nature.' What did I do? I plunged my finger at once into cold water and kept it there for some time. There is no remedy for a sting equal, in my opinion, to cold water. The cold water stops the rush of the blood to the injured part, and the necessary consequences. Some months since, the top of one of my fingers was crushed by the door of a railway carriage. What did I do? I put the injured finger at once into cold water and kept it there for some time until a doctor could attend. Consequently I did not suffer half as much pain as I should otherwise have done. Cold water applied at once I believe to be the best cure for the sting of a bee as well as of a wasp. Others, it is true, prefer ammonia, and some the juice of an onion, but let us say with the French, *Chacun à son goût*.

It may interest some of your readers to know that Mr. Dance has a reputation in the cricket-field as well as elsewhere, and that he is known by the *sobriquet* of 'Dr. Grace' at the wickets from his resemblance to that 'hero of a hundred fights,' and also from his prowess with bat and ball. I have to thank him for a very pleasant afternoon at the famous Gosfield Hall Gardens. —E. Bartrum, D.D., *Wakes Colne Rectory, Essex.*

THE LATE MR. J. F. B. FIRTH, M.P., AND HIS BEES.

As Mr. Firth was a bee-keeper of some fifteen years standing, and a contributor to the columns of this *Journal*, I thought his recent sudden decease called for some notice respecting him. He latterly kept four or five stocks of bees in the garden attached to his residence at Boltons, South Kensington, with varied success. At page 146, Vol. XI., appears an extract from the *Daily News* of August the 20th, 1883:—'*Honey Harvest.*—Mr. Firth, M.P., who is the largest bee-master in London, has just gathered his honey harvest. The yield is equal to the average, amounting to about 33 lbs. of pure honey available for use, and nearly an equal quantity being left in the hives for winter stores. Mr. Firth is the possessor of between 80,000 to 100,000 bees.'

Mr. Firth related to me the circumstances which led to this paragraph obtaining insertion in the newspaper mentioned. Mr. Chesson, a gentleman connected with the daily press, came to him in the Lobby of the House of Commons, and said, 'Mr. Firth, have you anything new?' 'No,' replied Mr. Firth, 'nothing particular. The newest thing with me is that I have just been taking my honey.' 'Indeed,' said his interviewer. 'I had no idea that you kept bees!' 'Yes,' he said. 'I have had them for years, and a source of pleasure they have been to me.' 'And pray,' continued his questioner, how many bees have you?' 'Oh,' said Mr. Firth, 'from 80 to 100,000.' This vast number quite astonished the gentleman, who had no idea of the number of bees in a hive, and thought that it must be something unusual for the owner of four stocks to have such a multitude, and thus considering the statement extraordinary, he rushed into print. The paragraph being associated with Mr. Firth's name, went the round of the newspapers, much to the surprise of Mr. Firth, who had entirely forgotten the conversation.

A letter from Mr. Firth appeared in this *Journal*, September 16th, 1886, headed, 'Bees kept in London,' and stating that from two hives kept by him at South Kensington, he had taken 63 lbs. in sections, besides two frames, leaving over 15 lbs. of sealed comb in each hive for winter supply. As he remarks, for a district without a clover field within miles, it is perhaps worth noting. Exception was taken to this statement by a correspondent at Barnet, who suggested that Mr. Firth's bees had drawn their resources from the sweets in London shops. Mr. Firth having his attention called to the paragraph, replied that so grave a reflection on the habits of his bees compelled him to ask for space to refute it.

Only last year Mr. Firth had a Carniolan queen from me in a queen-cage, and going direct down to the House of Commons, he surprised several of his fellow M.P.'s by exhibiting her to them. He afterwards successfully introduced this queen to one of his stocks, and seemed not a little proud of the exploit. This year his bees have swarmed two or three times, and during his absence his servants have telegraphed to me for some one to go down and hive the 'truants.'

Mr. Firth was born amongst the dales of Yorkshire in the year 1842. His father was a wool-stapler and farmer, and it was at one time intended that he should follow farming. It may be that his short taste of country life may have had much to do with his love of bees. However that may be, he soon found he had a liking for more intellectual pursuits than farming afforded, and he came to London and studied for the Bar. Having passed several years as a successful advocate, during which time he also devoted himself to public matters, and made himself master of the intricacies of municipal reform, and wrote a work, or, as he playfully termed it, a pamphlet, on this subject, of some 800 pages. Mr. Firth was also elected on the School Board of London, as well as being member of Parliament for Chelsea, and subsequently represented Dundee. As is generally known, he has lately been chosen Deputy Chairman of the London County Council, and appeared to have many years of useful service before him.

He, in company with Mrs. Firth, some two weeks since, went to the Continent for his holiday, and with the hope of recruiting his health, which had been somewhat impaired by his recent arduous duties; but on Tuesday, the 3rd inst., he was suddenly seized with heart disease, and died at Chamounix at the age of forty-seven. His remains were interred last week in the English churchyard there, to the grief of a wide-spread circle of friends, and a general feeling that the country has lost an able and highly esteemed public administrator.—Alfred Neighbour, *September 9th.*

Language of Bees.—When bees are quiet and satisfied, their voice is the humming of a grave tune; or if they do not move their wings, an allegro murmur. If they are suddenly caught or compressed, the sound is one of distress. If a hive is jarred at a time when all the bees are quiet, the mass speedily raises a hum, which ceases as suddenly. In a queenless hive the sound is doleful, lasts longer, and at times increases in force. When bees swarm the tune is clear and gay, showing manifest happiness.—Ottl-Klauss.

Foreign.

SOUTH AFRICA.

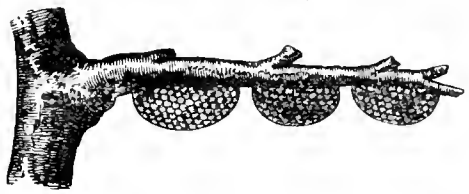
The Honey Bird.

Among the enemies of bees might well be added the honey bird of Southern Africa, of which Mr. Gordon Cumming gives an interesting account:—'It is about the size of a chaffinch, of a light grey colour. It will invariably lead the person who will follow it to a wild bees' nest. Chattering in a state of great excitement, it endeavours by various wiles to draw him on, and having succeeded in doing so, it flies forward in a wavy course in the direction of the bees' nest, alighting every now and then to see if the traveller is following, all the time keeping up an incessant twitter. When at length it arrives at the hollow trunk or the deserted white-ants' hill which contains the honey, it for a moment hovers over the nest, and then takes a stand on a neighbouring branch, and awaits patiently his share of the spoil. When the honey is taken, which is done by smothering the bees with smoke of burning grass. The honey bird will lead to a second, and even a third nest; but they often lead the unwary hunter into a fatal trap, sometimes guiding him to the retreat of the grizzly lion, or upon the den of a panther. The wild bee, of which it is the special enemy, exactly corresponds with the English hive-bee. They are to be found in every part of Africa, beeswax having an extensive trade both in the Gold and Ivory Coasts.'

TIMOR.

Taking the Honey-Combs of the Apis Dorsata.

The bees-wax is a still more important and valuable product, formed by the wild bees (*Apis dorsata*), which build huge honey-combs, suspended in the open air from the underside of the lofty branches of the highest trees. These are of a semi-circular form, and often three to



four feet in diameter. I once saw the natives take a bees' nest, and a very interesting sight it was. In the valley where I used to collect insects, I one day saw three or four Timorese men and boys under a high tree, and looking up, saw on a very lofty horizontal branch three large bees' combs.

The tree was straight and smooth—barked and without a branch, till at seventy or eighty feet from the ground it gave out the limb which the bees had chosen for their home. As the men were evidently looking after the bees, I waited to watch their operations. One of them first produced a long piece of wood, apparently the stem of a small tree or creeper, which he had brought with him, and began splitting it through in several directions, which showed it was tough and stringy. He then wrapped it in palm-leaves, which were secured by twisting a slender creeper around them. He then fastened his cloth tightly around his loins, and producing another cloth wrapped it around his head, neck, and body, and tied it firmly around his neck, leaving his face, arms, and legs completely bare. Slung to his girdle he carried a long, thin coil of rope; and while he had been making these preparations, one of his companions had cut a strong creeper, or bush-rope, eight or ten yards long, to one end of which the wood-torch was fastened and lighted at the bottom, emitting a steady stream of smoke. Just above the torch a chopping-knife was fastened by a short cord.

The bee-hunter now took hold of the bush-rope just above the torch, and passed the other end around the trunk of the tree, holding one end in each hand. Jerking it up the tree a little above his head, he set his foot against the trunk, and leaning back began to walk up it. It was wonderful to see the skill with which he took advantage of the slightest irregularities of the bark or obliquity of the stem to aid his ascent, jerking the stiff creeper a few feet higher when he had found a firm hold for his bare feet. It almost made me giddy to look at him as he rapidly got up—thirty, forty, fifty feet above the ground; and I kept wondering how he could possibly mount the next few feet of straight, smooth bark. Still, however, he kept on with as much coolness and apparent certainty as if he were going up a ladder, till he got within ten or fifteen feet of the bees. Then he stopped a moment, and took care to swing the torch (which hung just at his feet) a little towards these dangerous insects, so as to send up the stream of smoke between him and them. Still going on, in a minute more he brought himself under the limb, and in a manner quite unintelligible to me, seeing that both hands were occupied in supporting himself by the creeper, managed to get upon it.

By this time the bees began to be alarmed, and formed a dense buzzing swarm just over him, but he brought the torch up closer to him, and coolly brushed away those that settled on his arms and legs. Then stretching himself along the limb, he crept towards the nearest comb and swung the torch just under it. The moment the smoke touched it, its colour changed in a most curious manner from black to white, the myriads of bees that had covered it flying off and forming a dense cloud above and around.

The man then lay at full length along the limb and brushed off the remaining bees with his hand, and then drawing his knife cut off the comb at one slice close to the tree, and attaching the thin cord to it, let it down to his companions below. He was all this time enveloped in a crowd of angry bees, and how he bore their stings so coolly, and went on with his work at that dizzy height so deliberately, was more than I could understand. The bees were evidently not stupefied by the smoke or driven away far by it, and it was impossible that the small stream from the torch could protect his whole body when at work. There were three other combs on the same tree, and all were successfully taken, and furnished the whole party with a luscious feast of honey and young bees, as well as a valuable lot of wax.

After two of the combs had been let down, the bees became rather numerous below, flying about wildly and stinging viciously. Several got about me, and I was soon stung and had to run away, beating them off with my net and capturing them for specimens. Several of them followed me for at least half a mile, getting into my hair and persecuting me most pertinaciously, so that I was more astonished than ever at the immunity of the natives.

I am inclined to think that slow and deliberate motions, and no attempt at escape, are perhaps the best safeguards. A bee settling on a passive native probably behaves as it would on a tree or other inanimate substance, which it does not attempt to sting. Still they must often suffer, but they are used to the pain, and learn to bear it impassively, as without doing so no man could be a bee-hunter.—T. J. Mulvany, (*Australasian Bee Journal*).

Bees and Fruit.—An inspection of a magnified representation of the mandibles of the honey bee should be sufficient to convince any horticulturist of the truth of Aristotle's remark—made more than two thousand years ago—that 'bees hurt no kind of sound fruit, but wasps and hornets are very destructive of them.'

ASSOCIATIONS.

STAFFORDSHIRE BEE-KEEPERS' ASSOCIATION.

The Annual Show of this Association was held in connexion with the Show of the Staffordshire Agricultural Society at Walsall on August 27th and 28th.

Owing to the disastrous honey season last year, there was no show in this department at the exhibition at Burton-on-Trent. This was all the more regrettable, as, through the liberality of the Burton Local Committee, Lady Burton, and others connected with the town, the whole of the prize-money had been promised, thus relieving the funds of the Staffordshire Bee-keepers' Association, who have to provide the prizes. Lady Burton kindly renewed her support this year. We are glad to be able to record, in spite of the ravages caused by the failure last year of the honey harvest, so good a show of honey in every form as was on view at Walsall. This year's show was shorn of some of its interest to the general public by the prizes for collections of bee appliances being withdrawn from the prize schedule, as in previous years one or two of the principal hive manufacturers exhibited for sale large collections of hives and bee furniture of every description. There were four entries of average merit in the class for 12 1-lb. sections of comb honey in crates. Of run or extracted honey there was a very large exhibition; nor was it noticeable only in this respect, for it was equally commendable for its excellent quality—whether as regards flavour, colour, or consistency. The judge, in consequence, had much difficulty in deciding upon the relative merits of the nineteen lots staged, and, in addition to the four prizes offered, awarded an extra one and commended a sixth entry. Mr. S. B. Fox, of Maer, carried away the palm, but was closely followed by the other exhibitors. For best stock of bees exhibited in a straw skep Mr. Elihu Clowes and Mr. J. R. Critchlow entered the lists, as also for the best specimens of bees of any race exhibited with their queen in an observatory hive. In each class they divided the honours in the order in which their names are placed, showing in one case hybrid Ligurians and in the other the Carniolan bee, which latter is now coming much into favour on account of its docility. Of bees-wax there was a creditable entry. For the prizes offered by Lady Burton for the best exhibition of honey in any form there were some very attractive entries. The first prize was taken by Mr. Harry Wood, of Lichfield, with 150 lbs. of honey in varied forms—in sections, bell-glasses, and run honey in receptacles of different shape. It was pyramidal in form, a handsome bell-glass of comb honey forming a suitable apex. The colour of the honey was throughout of the best, which could not be said of some of the other exhibits in this class. We regretted to see there were no entries for the prizes offered by Mr. A. H. Heath for the best exhibition of honey made by bees belonging to a *bonâ-fide* labourer. This is probably accounted for by last year's bad season, which decimated so many apiaries.

Besides the stewards, Messrs. G. Farrington and John R. Critchlow, the Rev. G. R. Bailey and other members of the Association's committee were present and assisted in the arrangements. Mr. Rollins, the expert of the Association, gave demonstrations in bee-driving, &c., during the show. The following is the prize-list:—

Judge.—Mr. Walter Martin, Wainfleet, Lincolnshire.

Honey.—*Comb Honey in Sections:* 1, 10*s.* and silver medal of British Bee-keepers' Association, H. Wood, Lichfield; 2, and bronze medal of B.B.K.A., E. Richards, Wrottesley Lodge, Wolverhampton; 3, and certificate of B.B.K.A., T. F. Hulme, Trentham; 4, J. R. Critchlow, Maer Farm, Newcastle. *Run or Extracted:* 1, 10*s.* and silver medal of Staffordshire Bee-keepers' Association, S. B. Fox, Maer, Newcastle; 2, 7*s.* 6*d.* and bronze medal of Staffordshire Bee-keepers' Association, Mrs. D. Hancock, Rose Bank, Alsager; 3, H. Wood; 4, E. Richards; extra, T. Bailey, Baldwin's Gate, Whitmore; h. c., T. F. Hulme. *Best Exhibition in any form* (prizes given by Lady Burton): 1, 1*l.*, H. Wood; 2, 15*s.*, S. B. Fox; 3, 10*s.*, E. Richards; 4, 5*s.*, J. R. Critchlow.

Bees.—*Best Stock exhibited in Straw Skep:* 1, Elihu Clowes, Black Brook, Newcastle; 2, J. R. Critchlow. *Best Specimen of any Race exhibited in Observatory Hive:* 1, Elihu Clowes; 2, J. R. Critchlow.

Bees-wax.—1, T. Bailey; 2, S. B. Fox; h. c., J. H. Collier, Old Hall, Audley.

THE NORTH OF SCOTLAND APIARIAN SOCIETY'S SHOW OF HONEY, HIVES, AND BEES.

The annual show of this Society was held in the Duthie Park, Aberdeen, on 22nd, 23rd, and 24th August. The Show was a very successful one, the entries being far ahead of some former years.

The honey, both in section and bottle, was of very superior quality, and in many cases the judges had the greatest difficulty in making the awards. The Show was opened at twelve noon, on 22nd August, by Lord Saulton of Philorth, in presence of a distinguished party of ladies and gentlemen. His Lordship complimented the Society on the fine appearance of the Show, and wished the Society every success. Lord Provost Henderson, who takes a very kindly interest in all that concerns the Society, also gave a short speech, and spoke of the pleasure it gave him to notice the interest displayed by a member of his family who was a devoted bee-keeper. To these the Rev. Mr. Innes, of the F. C. Church, Skene, the president of the Society, replied in a neat and hearty speech. Mr. Steele, of Tayport, Mr. Carnegie, Marykirk, and Mr. Smith, of Gordon & Smith, Aberdeen, acted as judges, and their awards gave every one satisfaction.

A special feature in connexion with this exhibition was the public competition of driving and transferring bees and combs from a straw skep to a bar-frame hive, queen to be caught and exhibited, &c. This was a great attraction to visitors who appeared greatly interested in the proceedings, but owing to the day being cold and wet the weather was not suitable, and competitors acquitted themselves with rather indifferent success.

During the day, the Committee and the judges dined in the refreshment rooms, the Rev. Mr. Innes in the chair, Mr. Jack, vice-president, as croupier. A very pleasant hour was then spent, and a capital after-dinner chat upon bees and bee-subjects, every one being equally willing to give and take of their experience, and there was much comparing of notes of interest. Before parting the Rev. Mr. Innes made a very suitable and feeling reference to the great loss bee-keepers in the north of Scotland had sustained by the decease of Mr. W. Raitt, of Blairgowrie. He more than once acted as a judge for the Society, and was present on such duty last year. Mr. Carnegie replied and said he claimed Mr. Raitt as one of his oldest and esteemed friends, and spoke of the great blow it was to him when the sad news of his sudden decease reached him. He also paid high tribute to his memory, ever to be cherished as a kind and enthusiastic bee-keeper, and a well-doing and God-fearing man.

The following is the prize list:—Neatest and best display of honey, extracted or in comb. 1st & 2nd, J. Shearer, Aberdeen. Best super of honey. 1st, J. Shearer; 2nd, W. Rae, Aberdeen; 3rd, J. McIntosh, Aberdeen. Best super of honey in straw. 1st, J. Shearer. Best six 2-lb. sections, comb honey. 1st, J. Tough, Mirebird; 2nd, A. Cadenhead, Stocket; 3rd, J. Kiloh, Gamrie. Best six 1-lb. sections, comb honey. 1st and 2nd, W. Munro, Crathes Station, and A. Cadenhead, equal; 3rd, J. Tough;

commended, Wm. Munro. Best six 2-lb. jars extracted honey. 1st, Wm. Munro; 2nd, R. Bain; 3rd, J. Cadenhead. Best six 1-lb. jars extracted honey. 1st, Miss K. Drummond, Aberdeen; 2nd, W. Munro; 3rd, J. Cadenhead. Best sample extracted heather honey in glass six pounds. 1st, J. McIntosh; 2nd, J. Shearer; 3rd, F. Stewart, Banchory. Best sample extracted clover honey in glass, six pounds. 1st, J. Tough; 2nd, J. Shearer; 3rd, W. Munro; commended, Mr. Bain. Best collection of hives and bee furniture. 1st, Strachan & Thomson, Aberdeen. Best observatory hive. 1st, R. McGregor, Aberdeen; 2nd, F. Stewart; 3rd, J. Cadenhead. Best 2-lb. sample of wax. 1st and 2nd, W. Munro; 3rd, R. McGregor.

Best collection of honey and pollen flowers. 1st, Miss Innes, F. C. Manse, Skene; 2nd, Master Innes; 3rd, T. P. Black, 77 Abergeldie Road, Aberdeen.

Best practical essay on bee-keeping in Aberdeenshire. 1st, R. McGregor; 2nd, G. B. Black.

Best exhibit of wild bees, wasps, and their nests. 1st, A. McFarlane, Hector House, Old Aberdeen; 2nd, R. McGregor.

Driving competition. 1st, W. Smart, Apiary Cottage, Firny; 2nd, R. McGregor; 3rd, A. McFarlane.

Special prize given by Mr. Black for most artistic novelty. Master Innes, Skene.

SPECIAL PRIZES FOR CROFTERS.

For best super of any kind. 1st, P. Thomson, Skene; 2nd, W. Rae; 3rd, R. McGregor. For best display of honey. 1st, J. Tough; 2nd, P. Thomson.

SPECIAL PRIZES FOR LADIES.

For best mead or beer. 1st, Mrs. R. McGregor; 2nd, Miss Rennie; 3rd, Mrs. McGregor. For best honey-flavoured. 1st, Miss Drummond; 2nd, Miss Rennie; 3rd, Mrs. Bruce. For best display of honey taken from hives under their own management. 1st, Miss Cadenhead; 2nd, Miss Drummond.

Mr. W. Smart and Mr. A. McFarlane, after examination by Mr. Steele, were awarded third-class certificates for proficiency in apiculture.

The Secretary, Mr. James Thomson, 145 Union Street, Aberdeen, was most painstaking and obliging, both to exhibitors and visitors during the three days of the Show.

LANCASTER AGRICULTURAL SOCIETY.

The annual show of cattle, horses, sheep, poultry, dogs, &c., held under the auspices of the Lancaster Agricultural Society, took place on Wednesday, September 4th, in the Giant Axe Field. The bee tent attracted a great amount of interest and attention, and was pretty full of visitors the whole of the afternoon. It was intended to have had manipulations of bees each hour, but owing to the late arrival of the bee tent necessary for carrying this out, it had to be abandoned, and which was a cause of great disappointment to many persons. On this account also no charge for admission to the tent was made, and the loss of revenue to the Bee-keepers' Association from this source will be a considerable item. Honey this year is very fine, and there was a splendid display and good competition in the extracted class, that for sections, however, being only moderately filled; the Society's silver medal being given to Mr. Crosfield, of Arnside, for a capital display of comb and extracted honey. Mr. Drinkall, of Horse Shoe Corner, took first and second for honey in bulk. Two observatory hives containing Ligurian bees at work were shown by Mr. Liddell, of Nicholas Street, being the only entries in the class. One of these obtained the first prize at the Royal Show at Windsor, but on this occasion the judge withheld the first prize, the fittings of the hive by some means getting disarranged and allowing the bees to get out, the remaining one getting the second prize. Some good frame-hives were shown, the first prize going to Mr. Redshaw, of Leicester, and the second to Mr. Hartley, of Moor Lane, Lancaster. There was also a good display of bees-wax, and bee appliances of every kind. Rev. J. F. Buckler, Bidston Rectory, Birkenhead, and Mr. Wm. L. McClure, The Lathams, Prescot, acted as judges. The following is the list of awards:—

Best and most complete-frame hive, with arrangements for summer and winter use, price not to exceed 12*s.* 6*d.* unpainted.—1, C. Redshaw, Leicester; 2, John Hartley, Lancaster. Observatory hive to be exhibited stocked with bees and their queen.—2, William Liddell, Lancaster. Exhibition of honey from one apiary, in quantity not lees than 100 lbs.—Silver medal, James Crossfield, Arnside; 1 and 2, W. Drinkall, Lancaster. Comb honey in sections (from 12 to 20 lbs. in weight)—1, Rowland Wilson, Arkholme; 2, William Liddell; 3, James Crossfield. Exhibit of run or extracted honey, 12 to 20 lbs. weight in glass jars.—1, W. Liddell; 2, F. W. Dunsford, Frodsham; 3, William Tyrer, Prescot; res., Joseph Parr, Pilling. Sample of beeswax, not over 4 lbs.—1 and 2, W. Drinkall.

BIRKENHEAD AND WIRRAL AGRICULTURAL SHOW.

The apiary operations at this show were watched with much interest, the present mode of turning out the little workers contrasting pleasantly with the time when the bees were—

> 'At evening snatched,
> Beneath the cloud of guilt-concealing night,
> And fixed o'er sulphur.'

The honey-comb and every secret of the busy dwellers in the waxen cells, were shown in full light, and the bees themselves manipulated with the utmost freedom.

The following is the list of awards:—

Honey.—Best comb honey, in sections from 12 lbs. to 20 lbs.—H. Wood. Best extracted honey, in glass jars, from 12 lbs. to 20 lbs.—1, J. Outram; 2, H. Wood; 3, H. Corlett. Best comb honey, in sections from 6 lbs. to 10 lbs. weight, the produce of the exhibitors' own bees.—J. Wynne. Best six glass jars extracted honey, 6 lbs. to 10 lbs. in weight, the produce of the exhibitors' own bees.—1, J. Griffith; 2, J. Wynne.

HUYTON AND WHISTON COTTAGERS' HORTICULTURAL SOCIETY.

The eighth annual exhibition in connexion with the above Society was held on Saturday, August 31st, in a field adjoining the Lathams, at Whiston. A great attraction at this exhibition was an interesting exhibition of bees, honey, and bee appliances, and at three o'clock and 4.30 bees were driven by Mr. Carr, of the Lancashire and Cheshire Bee-keepers' Association.

SIXTY-ONE SWARMS ON THE SAME DAY.—In the morning, as soon as the watchword had been given for the first swarm, there was no rest. Primary, secondary, and after-swarms, all passed under the same limb of the same tree. The bees were no sooner shaken in a basket, and emptied in front of a hive, than there was another cluster gathered in the same spot. Some swarms had no queen, while others had three, four, and even five of them. Some were young queens, some were old queens. When we could find a queen, we caged her to preserve her from being balled. The sixty-one swarms were hived in twenty hives, and surplus cases were given them at once. A man, who had come with five hives to buy swarms, said he had never seen the like, neither had I, though I had kept bees for fifty-seven years. And the best of it is, I did not want any swarm at all that season.—J. F. RACINE, *Indiana.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

BEES LOST IN A FOG.

[2294.] The neighbourhood of Newcastle, in the county of Down, is one of the best in Ireland for bee-keeping, and skeppists have long done a good business there. But since the introduction of bar-frame hives into Ulster the number of stocks has increased many hundredfold, and the returns from them have been about the best I know of. One man, who owns only a cottage and garden, not long since netted 50*l.* by his sales to the summer and autumn visitors sojourning in Newcastle. The locality is a peculiar one; first, there is a wide stretch of level, well-cultivated land, to the south and west of which rise the Mourne mountains, whose slopes up to the tops are purple in the season with heather bloom, while their bases are clothed with the woods of Donard Lodge demesne and Tellymore Park, the seat of the Dowager Countess of Annerley, who is a keeper of bees, and the Earl of Roden, so that there is pasturage for the bees from early spring till late autumn—in fact, it is a perfect paradise for bees all the year round. And the scenery everywhere is most romantic and charming. I wonder more English visitors do not find their way over for the sea-bathing, and lovely country walks, and delightful mountain scrambles. For Slieve Donard, the highest point in all Ulster, towers above the scattered villas, and lodging-houses, and hotels of Newcastle, to the height of just 2800 feet, and that at only a distance of 1½ miles to the summit, so the nature of the climb may be imagined.

Well, these remarks are all introductory to my mentioning a curious accident which befell many of the bees in that district on the 6th of September. For some days previous there had been a continuance of fogs, which, on the date mentioned, culminated in such a dense mist that a person could not see more than a couple of yards ahead, and that evening and the next morning thousands of bees were washed ashore all along the sands and rocks by the incoming tides in a dead or dying condition, having lost their way in the fog and fallen into the sea. The residents and fishermen never saw anything like it before, and I do not recollect having ever read about such a phenomenon.

But it corroborates the opinion that bees on the wing are guided solely by sight; they have no home-finding instinct, else they would not have gone out to sea, when they had nothing to guide them; everything being rendered indistinct or invisible by the mist, they knew not where to steer for their hives, and thus perished.—H. W. LETT, *Aghadery Glebe, Loughbrickland, Co. Down.*

'IN THE HUT.'—HEATHER HONEY.

[2295.] When the chairman of a meeting makes statements and charges that are incorrect, it is conceded by all that he must withdraw these charges when brought to his notice, or bear the fire of criticism. In his responsible position he should be at least—like Cæsar's wife—above suspicion. Whether this will be admitted by 'X-Tractor' or not I do not know, but at any rate it is too uncourteous in him to throw all the blame of mistakes on the shoulders of the hard-pressed reporter without some grounds for his deliberate insinuations. It is with the greatest reluctance that I have again to correct this individual with his misquotations and incriminating of innocent persons. In his last production he says, 'I observe Mr. J. D. McNally mentioned "X-Tractor" a few weeks ago.' Well, I had almost resolved to pass this over, but seeing that I was the writer of the paragraph from which he gleaned his *observations* (see page 359 of *B.B.J. re* 'Borgue Honey'), and knowing that 'X-Tractor' in his former writings made the habitual practice of indulging in assertions that were incorrect, and when taken to task said it was only a *joke* on his part, I have thought it my duty, now that he has resumed his pen, to advise him to desist from such childish habits. Forewarned is forearmed. I am prompted to give him this advice knowing the opinion Mr. J. D. McN. has formed of him already with his *jokes*, and unless he means to bring down the whole 'clan' on the hut, he must in future take care. Judging from past experience of 'X-Tractor,' I believe, were he allowed to give his neighbour a *slap* on the face, that he would have the presumption to turn round and tell him it was only a *joke*—rather a huge joke I should say.

Referring to Borgue honey, no doubt bee-keepers residing in that part of Scotland would naturally not object to a little puffing of their famous honey, but I know they would certainly decline the honour intended to be thrust on them by 'X-Tractor'—I beg pardon, by the chairman *pro tem.* of B.B.K.A. meeting, page 342 of *Journal*—that their honey was the production of heather.

Speaking of heather honey, 'X-Tractor' furnishes us with some information that is new to those who produce this much-prized article. He says 'that nearly all herbs will be found to secrete stronger (if more crude and rank) active principles when grown under hard and bleak conditions.' Perhaps this theory may be accepted in Yorkshire, but past experience has proved to the hilt that it is not the hard, bleak condition of any given locality that has to do in producing the finest and most delicate flavoured nectar. The pure atmosphere is alone responsible for giving the distinctive flavour to honeys. On the mountain-tops, free from smoke or any other impurities, the finest heather honey is obtainable both in quality and quantity. Those who make it the custom of taking their bees annually to the moors, and who know how it is done, place their hives so that the foraging ground will be not on low-lying damp ground, with the vast tracts of heather, but on the high and dry hills, and if possible on the most sheltered side. The disagreeable odour in the heather honey 'X-Tractor' complains of a few years ago, would, I fancy, be in the dark days of brimstone. He does not, however, give the date. Of course it is well known there is heather honey and heather honey, and yearly there are large quantities of this high-priced honey sold that is not genuine. Until the public be more educated on its delicate and fine flavour, they will not be able to distinguish 'tother from which.'—W. MCNALLY.

CARNIOLAN BEES.

[2296.] Having kept English bees for over twenty years, I thought it would be as well to introduce fresh blood. As I like bees that will swarm well, I decided to have some Carniolans, they having already a good name for wintering well and early swarming. To give them a good chance and to make sure of having the bees pure, I made up my mind to buy an imported stock, if I could get one. Called on Mr. T. B. Blow, of Welwyn, in June, 1887, and found he had some imported stocks of Carniolan bees just come in. Chose one from these and received them on 21st June, 1887. As the imported

box was only about half full, they did not swarm that season, but made a very fine stock by the autumn. In June, 1888, first swarm, also second swarm, left the Carniolan stock. In the autumn, found the Carniolan swarm quite equal to the English where the swarms had been put on to frames to make up strong stocks; also found the Carniolan cast quite equal to the English first swarms. The old stock in imported box was also in good condition.

I will now leave the cast and old stock and keep to the swarm that has the queen that came over with the imported stock. In May, 1889, found this quite strong on fourteen bars placed on 21 lb. sections, which were quickly filled with bees. As I wanted them to swarm, I did not put on any more sections. A very large swarm came from this on the 2nd of June. During the next eighteen days five more lots swarmed from this stock. The first swarm covered thirteen frames the first night they were put on, leaving only one spare frame. In two days I placed on 21 lb. crate of sections, seven days after this placed on second crate of 21 lb. sections under the first crate. As I wanted a few 1-lb. sections the first week in July, I looked to see what the Carniolan swarm had done; found they had filled the first crate of sections; took off first crate and put on a third crate of 1-lb. sections under the second crate. Looked over them again on the 22nd of July, found them quite full on fourteen frames and 42 lb. sections. In about five minutes a maiden swarm swarmed out of this, which was very strong on eight frames. Another lot swarmed out on the 1st of August. I suppose you would call this a maiden cast. You see this will be as good as eight swarms from one stock in one season. This stock, besides giving the six swarms, has filled the crate of 21 lb. sections. They being on fourteen frames, there will also be six frames of honey to take from them, leaving the bees eight frames for the winter.—W. W. Pryor, *Breach Wood Green, Welwyn, Herts, September 9th.*

CARNIOLANS.

[2297.] In reply to Messrs. Moore and Tongue (2275), I have not had any sections this year, as I have been away so much that if I had had, the bees would have soiled the cappings by walking over them before they were removed. The cappings of Carniolans are, however, very firm and white.—A Young Bee-Keeper.

BEE-STING. (2284, p. 388.)

[2298.] Having had very much the same experience from a bee-sting as Mr. Thomas Fawcett, but having been more quickly cured, I thought a letter on the subject might not be out of place in the *Journal*. One day in the early summer I was manipulating the bees, and I received one sting on the back of the head. I had the sting removed in about a minute, and ammonia applied. I did not attempt to take it out myself, not wishing to lose a quantity of hair in the operation, and not being able to go round and look at the back of my own head. In a few seconds after the sting was removed I felt a sort of tickling sensation in my tongue, and immediately afterwards in my hands also. Then my eyes felt queer, and on looking into a looking-glass I found my eyelids swollen, and the whites of my eyes bright red. I took some weak brandy and water, and went off to business. As I walked up the street matters did not improve, but grew worse; my lips swelled, my face became puffy, and my throat felt rather 'choky;' so, having to pass the doctor's house, I thought I had better call in. When the doctor saw me my face was a peculiar colour, and my lips nearly black, and from my whole appearance I might have had a snake-bite; my pulse was very weak, and a large rash appeared all over my body. The doctor gave me three drams of sal volatile, and immediately afterwards two more drams of the same, and made me bathe the back of my neck with cold water, and in less than half-an-hour from the time of being stung I was well again, though rather feeling the large dose of ammonia. I felt no effects whatever in a couple of hours or so. I had been stung often before, and I have been stung often since, but never, except on that occasion, have stings had such an effect upon me. I am no more proof against stings now than I was before; unfortunately they swell just as much as ever. My advice to bee-keepers who think they may be stung in a vein is to keep a supply of sal volatile, and if they begin to feel any of the symptoms I have described, take a dose at once; and in the event of their not having sal volatile handy, try a good dose of *strong* brandy and water.—Crispin E. Smith, *Vicar's Court, Southwell, Sept. 10th.*

EFFECTS OF A BEE-STING.

[2299.] I have been interested by the letter of Mr. Fawcett describing a severe bee-sting. Last year I had a similar painful experience. While manipulating my bees, I was stung in the wrist, and instead of immediately removing the sting, I finished my operation. I suppose it took me five minutes to do so. I felt the same sensations as your correspondent—a tingling all over, with faintness. Quickly the symptoms became worse. My lips became white and stiff, and the muscles surrounding my mouth became almost rigid. I experienced great difficulty in swallowing, my throat feeling as though it were filled up. The doctor, who fortunately lived almost next door, ordered whisky and water, half and half, and sent me to bed. In a few minutes I was covered with a red rash from head to foot. When I awoke in the morning, that had disappeared, and the only discomfort I experienced was a swollen arm, not, however, sufficiently bad to prevent me playing cricket all day. The doctor called it blood-poisoning, and said that no doubt the bee had injected the poison into one of the veins, and it was immediately carried all over the body by the blood, causing, I should imagine, a partial stoppage of the action of the heart. Since then I have several times been stung, and I find that the effect is not nearly so bad as before this sting. Whether it is because of that serious sting or not I cannot say. Formerly a sting caused a most painful swelling, but this year, although I have been stung several times, no bad effect has followed; perhaps your correspondent may be equally fortunate.—W. H. Cooper, *The Elms, Wrotham, September 11th.*

BEE-STING: AN EXPERIENCE.

[2300.] In reading the experience of Mr. Thomas Fawcett [2284], in the *Bee Journal*, respecting the effects of a bee-sting, reminds me of a similar experience myself. Some few years ago I was manipulating with my bees when one of them stung me on the top of my head. I felt but little pain, so I left my bees and began to weed in my garden, when after about ten minutes I felt a strong glow about my face. At first I thought it was the effect of the sun upon the ground, but in a short time I was completely covered all over my body with a *rash*, even down to my feet. I went into the house and looked at my face in the glass; when I saw that the whites of the eyes were quite red, I felt alarmed, and asked for a little brandy. After taking the brandy I felt a little stronger nerved; also I bathed myself in *salt water*. When I get a sting nothing relieves me sooner than warm salt water; the more salt the better. My opinion is that the *rash* is the effect of nature throwing off the poison through the pores of the skin, and that there is little cause for alarm.—Moses Price, *Amblecote, Brierly Hill, Staffordshire.*

HIVING SWARMS—HEATHER HONEY HARVEST—INFORMATION SOLICITED.

[2301.] In Mrs. Harrison's description of her management of her apiary, *B.B.J.*, dated 8th Aug., p. 343, that lady states, 'I think bees are more apt to desert comb containing brood than empty ones.' Now, this season I have had seven swarms. Five of these I hived on the parent stand, after taking a frame of brood from the parent hive and putting it into that about to receive the swarm. None of these deserted. One I hived in a hurry, and forgot to give it the usual frame of brood. This one flew away unseen. The seventh, and last, was not placed on parent stand, but immediately taken to the heather, about two miles off, the parent colony following it shortly after. Now that parent colony, not having been so severely robbed of bees, is filling sections at the heather, as also are the colonies which have not swarmed; while neither the colonies which helped to swell the swarms nor the swarms themselves are at work in sections.

At the time of swarming the sections were taken off the parent hive and put over the swarms. As a rule these were finished off, but the swarms seem to have exhausted their energies in the execution of this job, and are, apparently, taking time to recuperate before tackling sections again. Would some of your readers, who annually trust to a heather-honey harvest, inform novices like myself what is their rule for dealing with swarms? I think there is an opening for the absorption by beginners of a good deal of information with regard to the heather-honey harvest. Will our Yorkshire and Scottish friends please speak out? For instance, when is the heather-honey harvest supposed to begin, and when end? Does wet weather wash the nectar out of the heather as thoroughly as in the case of clover? Will a frosty night put an end to all hopes of further surplus for the season? &c., &c.

There are a goodly number of bar-frame bee-keepers about here who would be thankful for information on these points. According to the oldest inhabitant (ætat. 80), a skeppist, prodigious harvests have been obtained from 't'ling' in his time; but though there are about two thousand acres of it remaining, no bar-frame bee-keeper has got a section from it yet. In 1887 (our first attempt) we attributed the failure to a frosty night on the 11th August, last year to the persistently inclement weather, and this year, though the weather is decidedly warmer than last, still it is so wet that the corners of our mouths are assuming a decidedly downward tendency.—SPERO.

STORIFYING AND LONGITUDINAL.

[2302.] There are many who think the bees prefer to store their honey above the brood-nest, before the end of it. Observing many instances of the latter, I this spring set apart seven of my longitudinal hives for an experiment. I put ten frames for the brood-nest, held by a dummy containing some excluder zinc, behind which I had the frames for extracting. I put a crate holding twenty-one 1-lb. sections over the brood-nest, but not any excluder zinc under, which gave the queen liberty to enter and lay her eggs there if she chose. The frames when full, but not capped, were extracted. Thinking there would be sections, I made an entry for the county show, but could not get any for it, nor yet to give to my friends, until the frames were sealed over and left; they then filled the sections, but the queen did not lay her eggs in them. This brought on the swarming mania, which was difficult to control. The orchard apiary being a distance from the house, and not under supervision, also the queen's wings not being clipped, there was a danger of a swarm issuing and absconding. The weather, especially the nights, recently has been bad for the secretion of honey, as my stocks testify by a twenty-acre field of white clover near here, which was mown, and has been for some time white with blossom, and even the road-sides.—ROBERT THORPE, *Swineshead.*

DOCILITY OF BEES.—REDUCTION OF PRICE OF HONEY.

[2303.] In common with many other readers, I thoroughly agree with what was said on the docility of bees in last week's issue. Bees are not so docile, in spite of smokers, fumigators, and carbolic cloths as many lecturers would have the uninitiated suppose. At a flower show held last season near here an amateur bee-keeper who had charge of the bee-driving and lecturing department thought it quite *infra dig.* to wear the veil, &c. I heard privately, and on good authority, that he spent the next day in bed with a swollen face, and with many parts of his body very sore! I consider the bee-tent, or rather the utility of it, is going out of date, because further additions to the ranks of the bee-keeper are certainly not desired or required.

If we have another good season or two, I do not see what there is to prevent run honey from going down to *3d.* per lb., and sections to *4d.* each or less, seeing that even this season *6s. 6d.* per dozen for sections, seller to pay half carriage and take risk, is being offered by an advertiser in this *Journal.* At least, that is what I have been offered for 300 sections, and another man has been good enough to offer me *4d.* per lb. for 200 lbs. of run honey *delivered!* I mention this openly, because if this is the result of one good season, with no old stocks left from last year, what shall the result of two or three good seasons be? I ask. Hence it behoves the novice to think twice before rushing into bee-keeping. If it comes a bad season, he will have to expend largely in sugar to keep his bees alive, and if it comes a good season he will have to beg people to come and buy his honey.—WYCHWOOD.

FERTILE WORKERS.

[2304.] Having seen very little in your *Journal* under this heading, I thought it might interest some of your readers who have no doubt had a somewhat similar experience of these ruinous intruders.

On June 20 one of my stocks, Italian hybrids, swarmed, a crate of thirty-six sections being on the hive at the time. I hived the swarm in the usual way and put them on the stand that the old hive had occupied, and removed the old stock to a new stand. The next day I cut all queen-cells out, except (as I thought) one from the parent hive, in the hopes of preventing a cast from coming off; but evidently, as usually is the case, I must have missed cutting out some queen-cells, as they sent off a cast ten days after the first swarm. I again hived them in a skep, intending to return them to the parent stock in the evening.

I now looked at the old stock again, and found they had no queen and only one queen-cell, which was very small and ill-shaped, so I thought it better to pull this down and let them have the queen from the cast in the hopes that she would be more vigorous; but to my astonishment, after the cast had been quiet and peaceful in the skep for two hours they turned out and returned to the parent hive. The only accountable reason for this could be that they were queenless or had a crippled queen, either of which would necessitate my introducing a new queen—which I intended doing next day, but was, unfortunately, not able to examine the stock again for four weeks, being away from home, and the person I had left in charge was not competent to undertake such manipulations. When I did look at them on July 30, I found to my disgust that the hive contained a fertile

worker. I referred to Cowan's and Cheshire's books to see what was the best remedy to get rid of these pests, and found that the only way of getting quit of them was to divide the stock up. However, after considering, I concluded to resort to a less severe method suggested in that admirable work, *A Modern Bee Farm*, by S. Simmins, namely, to introduce a laying queen, which I did by Simmins' direct introduction method—another valuable step in bee-keeping. In fact, I feel bound, as a bee-keeper, to say that I think Mr. S. Simmins' 'Non-Swarming System' and 'Direct Queen Introduction' are two of the greatest moves in modern bee-keeping.

I again looked at my stock on August 27th, and saw the queen I had introduced, who had been laying, but was far behind the worker who was still depositing her eggs, three, four, and five in one cell. Is there any chance of the queen I have introduced over-powering the fertile worker before spring? I should be glad to have some information on this subject from some of our large apiarians, as it is a subject that has been touched on many times in your *Journal*, but never satisfactorily taken up by any one who has had experience enough to give advice. I have referred to all the back numbers of the *B.B.J.* for two years and can find nothing that would be of service to a bee-keeper who is in such a dilemma.—H. Wise, *Poynton, Cheshire.*

IRISH BEE-KEEPERS' ASSOCIATION.

[2305.] Do you allow any one to joke in your columns? If so, I would like a small one at the expense of the I. B. K. A. First look at 'Judging' (2295) last issue, with twenty-five marks for 'get-up,' all the marks are given for 'stuff' outside the means of cottagers and persons keeping bees for profit. You can purchase nice clean sections for 6*s.* per dozen, and even at that price I have known bee-keepers this year to turn off more from their hives than from their cows. It is hard for the bees to keep ahead as everything is set down against them, not one morsel of honey will be used in the house, they are made to show hard-and-fast profits. Good butter is selling here for 1*s.* per lb., the workpeople would rather have honey on their bread, if the housewife gave honey she could sell a greater quantity of butter. Only yesterday I asked a farmer to sell his honey (we were doing transferring for him from skeps into frame hives). 'Oh, no,' he says, 'we eat all our honey and sell all our butter, and all ever grieved me was killing the bees.' We are on the right road now. Sections can very well be sold by retail for 9*d.* each. Judges should give prizes to best sections in their 'simplicity.' Why I saw sections finished this year and they were as clean as when they left the factory; increase the cost and let me see who will get 1*s.* per section. I would like to have the man selling such sections alongside me at a show, and I vending at 9*d.* We can sell any amount of sections, and I would say to all bee-keepers, Go in for comb honey, keep as few appliances about you as you can, but mind, have your stocks strong and super in advance. I took double crates off all hives we had to do with this year, even off a Stewarton with two body boxes. We have known bee-keepers to place sections in dead air space with excluder and get the whole affair quite full. Judges at shows should not give prizes for elaborate 'get-up' of honey in any form.

Well, the last and most serious error of this institution is the conditions set forth for examination of experts; and, Mr. Editor, I do not know that up to this they have a single expert under the guidance of the I.B.K.A.—A Bee-keeper.

Old Bees.—Notched and ragged wings and shiny bodies, instead of grey hairs and wrinkled faces, are the signs of old age in the bees, indicating the season of toil will soon be over. They appear to die rather suddenly; and often spend their last days, and even their last hours, in useful labours.—Langstroth.

Echoes from the Hives.

Fulford, York, Sept. 11th.—I have not seen lately any echo from this part of the country; and as my yield of honey this season has been equal if not superior to any I have seen reported from the more favoured south, perhaps it may be interesting to your readers. I am always interested in the results of other bee-keepers, and as the season is about over, perhaps we shall have more results tabulated. I commenced the season with eleven bar-frame hives, but one was robbed of brood in spring to strengthen other stocks, so my yield is practically from ten. They have yielded fifty-eight stones, or an average of 80 lbs. per hive. I took 250 well-filled sections from two of my best stocks. I should have had a higher average, but one stock went queenless, and another swarmed and flew away in the height of the honey flow, and besides nothing was gathered from fruit blossoms, as stocks were too weak in early summer to avail themselves of that source of supply. I may add I use queen-excluding honey-boards, parallel frames, and work on non-swarming system, all swarms being returned.—J. W. D.

Fairspeir, Wychwood, Oxford, Sept. 13th.—For this district the season has, I should consider, been very fair. June was a capital month for honey gathering—the best June we have had for years, but the honey flow stopped about the second week in July, when very showery weather set in. Although a good second crop of white clover came up in August, yet not a bee went near it, even in hot weather, to my astonishment. My two best hives yielded 127 lbs. and 89 lbs. of honeycomb respectively; my worst 62 lbs., besides abundance of winter stores. Seeing that they are only right-angled ten-frame hives I consider this remarkably good, and I venture to think this record will not be beaten by many other bee-keepers of *ten*-frame hives. I have given the four-bee-way section a good trial, but do not consider it is finished off more completely than the two-bee-space section. Slotted dividers are, however, a great help. Purchasers of super crates should only buy those which have a bee-space between sections and sides of crate. A bee-space between each row of sections is also desirable. I cannot understand why super crates are not made to entirely cover the tops of frames. I have been obliged to nail a strip of wood each side every crate to keep the bees from going up and building in the roof—a thing they have done with me twice. It is, to say the least, rather uncomfortable on lifting off your hive roof to find almost a swarm of bees in it, whilst a couple of pieces of comb, each as large as one's hand, probably fall on your toes.—Apiarist.

Glencolmbkill, Boston, Oranmore.—As, at the commencement of the present season, I ventured to send an echo from some Clare hives, so, now that it is well ended, I would like to send another. The season has certainly been a good one, especially for those who gave sufficient room during those glorious days that buried June and ushered in July. But I know more than one proprietor of bar-frames—I will not call them bee-keepers—who consider they do all that is required when they put *one* crate of sections on at the beginning of the season, and are thinking now of removing it; and one did not consider it necessary to put a quilt on sections; but he asked me to remove it, as it was a 'game he did not understand.' Well, the crate came off with cover, and with difficulty could be persuaded to leave even the frames in the hive. It was not without many stings that I got some 30 lbs. out of the cover, as well as 20 lbs. out of crate; while there are others, though kept by lady bee-keepers, which would compare with some of your A 1 apiaries in England. From one, standing on some twenty frames, a total of 115 lbs. was taken, of which only about twenty was run. In another

apiary, from one hive, which was successfully prevented from swarming, a total of nearly 120 lbs. was taken, all sections. My apiary, which stands on eighty-five broad frames, and about thirty-three super frames, the rest being worked with sections, has made a fair return of nearly 500 lbs., but I owe it in a great measure to the extractor; I was enabled to fill, or rather empty, my sections three, and in some cases four, times during the season. I have now sent two hives up the mountain, but I do not find that they are storing any surplus. The others (seven now) I found quite without honey in the brood-chamber, but for the past ten days quite a quantity of honey has been gathered, and on last examining them I found the combs filled, though not sealed. I have such a horror of foul brood that I have not attempted to take driven lots, and yet it is a pity to destroy them. That your *Journal* has rendered valuable assistance to bee-keepers there can be no denying, yet I could wish it to do something to foster a love of bee-keeping in Ireland. We read of bee-tents and shows in almost every county in England, but only two or three in Ireland. I am three years a bee-keeper, and would go twenty-five miles to see a bee-tent, yet never saw one. The Irish Association does not seem to desire to establish county branches.—FURLOUGH B. O'BRYAN.

NOTICES TO CORRESPONDENTS & INQUIRERS.

J. EDWARDS.—*Wax-moths.*—If combs are affected with larvæ or eggs of wax-moth after taking from hive, they should be placed in a box and fumigated with burning sulphur. A smoker can be used for this purpose by using for fuel brown paper dipped into molten sulphur, and injecting the fumes into the box through a hole made in the lower portion of the box for the purpose. The frames of comb should then be hung in boxes at least an inch apart, the boxes wrapped in paper, and a piece of camphor placed in each box.

J. F.—*Cane Sugar.*—The best sugar to use is 'granulated,' choosing that of large grain: in this no beet is used. The common, close-grained loaf sugar is extensively adulterated with beet, especially that of German manufacture. 'Tate's cubes' black brand is free from beet; this can be obtained from any respectable grocer—it is supplied to the grocer in hundredweight cases labelled with the above brand.

F. LINTER.—*Foul Brood.*—We can find no evidence of 'foul brood' in the small piece of comb sent.

BANKER.—*Age of Queen.*—The queen received is a young one. Absence of brood in a very weak colony at this season of the year is no evidence of the queen being aged. Give the colony two or three pounds of driven bees, and 'feed up' well.

J. GREENSILL.—*Sample of Honey.*—The sample sent is mixed flower honey, of excellent quality and flavour. We should judge that you have heather growing in your district, from the flavour and aroma. The bees will winter well on it.

H. R.—*Foul Brood.*—An exceptionally bad case of 'foul brood.' If all the combs are as badly affected as the sample sent there is little use in using curative measures, as the colony must have dwindled to such an extent as not to be worth the trouble. Burn the combs and destroy the bees. Thoroughly disinfect the hive with hot carbolic acid and water, if it is worth it. We have never seen so bad a case.

G. T.—*Liability of Railway Company.*—We should press for compensation without the slightest hesitation, as we consider them liable.

WORKER.—A reply will be given next week.

W. B. CHAMBERS.—*Wasps.*—Those sent are the workers. Destroy all you can. Try pint or pint-and-a-half bottles with a little sweetened beer in them. Set them about among your hives; you need not fear about your bees being caught.

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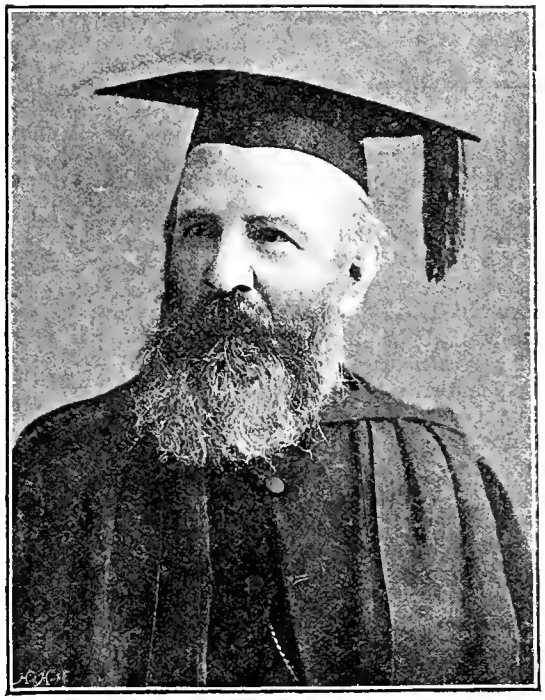
Editorial, Notices, &c.

EMINENT BEE-KEEPERS.

No. 12.—THE REV. E. BARTRUM, D.D.

The Rev. Dr. Bartrum, whose portrait we present this week, was born at Sion Hill, near Bath, in 1833. He was educated at King Edward VI. School, Bath, under the Rev. J. Pears, and in 1852 proceeded to Pembroke College, Oxford, where he took honours in Classics, Law, and History. In 1856 he was elected to the second Mastership of his old school under the Rev. C. J. Macleane. In 1858 he took his degree of M.A., and in 1859 became curate (in addition to his Mastership) at the Octagon Chapel, Bath, to Dr. Magee, the present Bishop of Peterborough. In 1861 Dr. Bartrum was offered the head-mastership of Hertford Grammar School by the Right Hon. W. Cowper on behalf of Lady Palmerston, who held the patronage. In 1864 he removed to Berkhamsted on the nomination of Lord Palmerston, then Prime Minister acting for the Crown, and took the head-mastership of the school there. Under his able management it rapidly improved, and from fifty the numbers increased till at his resignation Dr. Bartrum left it a large public school with over 180 boys. During his time the school had been enlarged and the greater part of it rebuilt, and many pupils have obtained high distinction.



REV. E. BARTRUM, D.D.

His connexion with the B.B.K.A. began in 1879, although before that time he had become interested in bee-keeping in consequence of the able articles that appeared from time to time in the *Journal of Horticulture* written by the late Mr. Woodbury. Visiting the Crystal Palace Show he was so struck with the splendid Stewarton supers shown on that occasion by the present Chairman of the B.B.K.A., that he determined to keep bees. Dr. Bartrum joined the Association at the same time as his friend and neighbour the Rev. H. R. Peel, and has been an active member of the committee since 1880. He has interested himself in the examination of experts, being one of the examining board, and has devoted much time and care to the management of the finances of the Association. He worked with the moveable comb-hive and the Stewarton, and from its simplicity of management was a great partisan of this system. His little book, *The Stewarton: the Hive of the Busy Man*, attracted considerable attention to that famous Scotch hive, but in recent years Dr. Bartrum has admitted the greater advantages of the moveable frame-hive.

The experience of the success attending the bee-tent, with its display of driving, combined with *viva voce* explanations, led Dr. Bartrum to apply the same principle of teaching by the eye as well as by the ear to instruction in butter-making. In 1884, assisted by Lord Rothschild and others, he started a butter competition at Tring, Herts, the first attempt of the kind we believe ever made. In a letter which lies before us, written by one of the promoters of the Eastern Counties' Dairy Institute, the following passage occurs:—'I do not forget what we owe to you as the originator of the butter-making contests which have done so much to revive our interest in dairying.' Through Dr. Bartrum's indefatigable zeal this method of combining practical work in public with oral instruction has spread rapidly through the land, and the almost lost art of butter-making is advancing with as rapid strides as modern bee-keeping has made in recent years.

In 1885 the Rev. E. Bartrum received his degree of Doctor of Divinity, and in 1887 he resigned his position of head-master at Berkhamsted, having been presented to the Rectory of Wakes Colne in Essex by the Earl of Verulam. Both Dr. and Mrs. Bartrum were great favourites at Berkhamsted, and the regret at their leaving was universal. On the 9th of December, 1887, a meeting was held at Berkhamsted, at which were present many past and present pupils, parents, governors, assistant masters, and personal friends of the retiring head-master. At this meeting a beautifully illuminated

address, mounted and framed in the Renaissance style, with the school arms emblazoned in the centre, was presented; also a very handsome library-table in smoked oak and crimson, with antique brass mountings; and a valuable time-piece in black marble, and ringing two sets of chimes; as well as a portrait of Dr. Bartrum in an old oak frame with the school arms in centre. A purple morocco case containing a handsome bracelet was presented to Mrs. Bartrum, this was a gold band with five diamonds—'From the boys and masters of Berkhamsted school.' It was no wonder that Dr. Bartrum's separation was regretted, for while at Berkhamsted he took an active part in the progress and welfare of the community around him. For twelve years he was a member of the School Board, for sixteen President of the Mechanics' Institute; he established a Penny Bank, which is now a flourishing institution, and assisted in establishing a Water Works Company, of which he has been chairman for some years, and also in building a swimming-bath. His time was too occupied with scholastic duties to be able to devote much time to looking after bees while at Berkhamsted, but since his removal to Essex his parochial duties allow him more leisure for bees and other rural occupations. Dr. Bartrum is well known as a writer in these columns, and his articles on bees and fruit that have been recently appearing are particularly interesting and instructive. The above account will show that Dr. Bartrum has always been 'a busy man,' and we hope he may be long spared to continue the same active interest in the welfare of his neighbours in Essex as he did in Herts.

BRITISH BEE-KEEPERS' ASSOCIATION.

A reference to the report of the proceedings of the last meeting of the B.B.K.A. will show that the Committee are unable to meet their liabilities so readily as they would otherwise wish, and that they require available funds for current accounts. This difficulty has arisen from the larger amount of work, and consequent expense, which has devolved upon them during the present year. It has been an exceptionally heavy year. It was considered necessary, in the interest of bee-keeping, that the Railway and Canal Traffic Act should be strenuously opposed. This opposition has already caused a heavy drain on the funds; and a further outlay is still required in order that the industry should be fully represented on the Mansion House Committee, which is still agitating the question, on the result of which the future of bee-keeping so much depends.

Besides the above, the Association have been put to a large expense in conducting in a liberal manner the Windsor and the Horsham Shows, and in improving the system for conducting examinations. Had the Committee not acted with decision and promptitude,—had they ignored these opportunities of publicly upholding the industry they represent on the plea of scarcity of funds, the probability is that they would have been reproached for omission of duty or a lack of enterprise. The Committee have done a great work in taking advantage of the opportunities which have been presented to them; and they feel assured that they will be supported in every possible way by the members of the Association. When we look on the work that has been accomplished, it will be patent to all that this year must have been one of considerable anxiety to the Committee, seeing they have not spared either time or trouble to effect their ends. The bee-keeping community has great cause to be grateful to the Committee for the success which has been achieved. The Windsor and the Horsham Shows were eminently successful. The Windsor Show especially has been the cause of directing, from all classes of society, attention to their industry in a very marked degree.

We hope, therefore, that the appeal now made will be met promptly and liberally, so that the future of bee-keeping may be brighter than in any of the previous years of its existence; and we make this appeal, both to bee-keepers and the purveyors of bee-keeping appliances, with the greater confidence as it is acknowledged by all that the present year has been a most prosperous one, both for the produce of honey and the amount of business transacted.

Subscriptions will be thankfully received by the Secretary, Mr. John Huckle, Kings Langley, Herts.

USEFUL HINTS.

Weather.—Since our last we have had exceptionally favourable weather for our necessary autumn work, but there are certain premonitory signs that we are likely to have sharp cold weather rather early. We would, therefore, once more advise all who have not completed their feeding-up, to do so at once. Some stocks have been carrying in exceptionally large quantities of pollen; it will therefore be well to take this into consideration in estimating the stores in hand. The nights are now sufficiently cold to demand a further addition to the coverings over frames. Stocks that are warmly covered up keep in a far more lively condition, and take every advantage of a fine day; and although all excitement should now be avoided, our bees derive great benefit from a flight in the genial sunshine.

Feeding must be completed by the end of this month. The following recipe is from *Cowan's Guide*, which we give for the especial benefit of those who may not possess that useful work:—

Autumn food for bees, to be boiled for a few minutes.

White lump sugar	10 pounds.
Water	5 pints.
Vinegar	1 ounce.
Salicylic acid solution ...	1 „
Salt	½ „

To make the salicylic solution, for mixing with syrup for feeding bees, painting over hives, and spraying combs, &c., for prevention and cure of foul brood, mix:—

Salicylic acid	1 ounce.
Soda borax	1 „
Water	4 pints.

Spare Hives, &c.—All spare hives, section racks, and empty frames, should be well cleansed with boiling water, and then washed with the above salicylic solution. All frames with empty combs should be well sprayed with it also, and if done overnight and left in a warm kitchen till morning, they would be fit to store away for next spring use.

Wasps are still very scarce, and long may they remain so. A sharp look-out should be kept for the young queens; a quiet, sunny nook, where the ivy is in bloom, is a very favourite place for them. We have seen them in such spots literally by the score, and promptly took the necessary steps for their destruction. It must not be forgotten that the present glorious weather is just such as will enable the young queen-wasps to secure fertilisation, and scarce as they are this

year we may have a veritable plague of them next season.

The Teachings of the Bee-tent.—We have read and re-read Friend Lett's homily on p. 397 with very great pleasure, especially the last half of the concluding paragraph. Exactly so, Mr. Lett; we are banded together on philanthropic grounds only. The B.B.K.A. and the various County Associations do not and never did exist for the sole purpose of aiding people to make money, but with a view to enable all to take a deep interest, and withal an intelligent one, in the wondrous life of the honey-bee, and to admire therein the infinite wisdom of the great All-Father. But it is possible not only to clear working expenses, but something beyond, and this general spread of the '*secrets*' of successful bee-keeping must bring down the price of honey, thus placing within the reach of all a highly nutritious food that can be safely relied upon as free from adulteration at the 'manufactory.' The day of monopolies is happily fast disappearing, and our best efforts shall always be freely made use of to hasten the abolition of the last monopoly. Why, we would spurn to have a monopoly even if it was the monopoly of doing good. The earth, with all its wonderful fruitfulness and many resources, was made for the enjoyment of all men, and not for the select few, which few have been, as a rule, selected by themselves. Do good and not evil to one another is a command that is still as binding as when first uttered.

The American Bee Journal, in an interesting article on the firm of Dadant & Son, states that up to August 8th, 1889, the firm had sold 57,000 pounds of comb foundation. Twenty-five years ago Mr. Charles Dadant commenced business with two colonies of bees and the inevitable log-cabin, but—no flourish of trumpets. The firm now own over 500 colonies. Surely our readers may take courage from this success. Doubtless rates and taxes are the great bugbear in this country, but many a country garden would accommodate from ten to twenty hives, and if managed with judgment—in fact, the same judgment that it is necessary to bestow on any other live stock in order to make them a success—the profit arising therefrom would be found a very welcome addition to a working-man's income.

General Work.—Every effort should now be made to get all stocks in a fit condition as regards *sealed* food and sufficient coverings to withstand the strain of the winter season. All spare fittings should be carefully cleansed and stored away for future use, weeds removed from the neighbourhood of the hive; a good layer of ashes strewed round the various hive-stands tends to keep away vermin, and in case of returning bees getting blown to the ground when alighting gives them a drier and warmer resting-place than the garden soil.

Italians.—The opinion concerning the superiority of these appears very diverse among the leading bee-masters on the other side of the Atlantic, judging by the replies given in the *American Bee Journal* on this subject. Doubtless difference in climate and elevation may in that country affect the result, but so far as our experience goes we have a decided preference for the Italian over the black, and for the Carniolan over the Italian. It must be remembered, though, that each of these varieties varies considerably in its working power, and it is only by a process of careful selection that the best results are obtainable. Decided markings may with Italians be considered pretty, and even a *sine qua non* with some bee-keepers, but we prefer the honey. This may be sordid on our part, but if the markings are chosen as the point to breed and select from we are quite likely to find ourselves face to face with a similar difficulty to that which keepers of high-breed poultry experience. Poultry has been for years past bred for feather to such total exclusion of every other quality, that although a pen of prize poultry is a picture to look at, it would be found a bad investment for egg-producing at a reasonable price. Many a country farmer's wife who rightly considers her poultry *worth* looking after *personally*, has by selection secured a capital strain of egg-producers. Exactly the same process must be adopted by bee-keepers who hope to succeed. A swarm from a well-known good working apiary is always of at least a half more in value than one from a poor working lot. Although we cannot control the mating arrangements of our bees individually, still were all to work with the same object in view we should soon see a marked improvement in our hive bees so far as productiveness and gentleness are concerned. Combined effort has already raised bee-keeping to a science, but at present the art is but on the very threshold of the possible.

BENEFITS OF BEE-CULTURE.

By Mrs. Harrison.

I see by the *British Bee Journal* that a great deal of time and money is spent by the benevolent in teaching the science of bee-culture. Father Langstroth used to say that if he did not make any money out of his invention, he should be satisfied if poor people who were not able to keep a cow, and have milk and butter, could learn how to keep bees, so that their children could have honey on their bread. Father Langstroth may yet live to see his wish verified, at least in the British Isles. This fostering of the industry may cause the product to be very cheap, and cause a loss to some specialists, but the society no doubt has at heart 'the greatest good of the greatest number.' If our population was so thoroughly instructed in bee-culture as they are in Great Britain, honey would soon be as cheap as milk.

Benefits of Bee-Culture.—People who look upon bee-culture only from a pecuniary standpoint take a very narrow view. A hive of bees represents a great deal more than the honey and wax it contains, it has a good system of government, and is the only one known to the world in which the executive and officers are females. All the members of this community work together for the common good, and with a purpose. Whoever saw a bee that was gathering pollen fly off to see if a bee gathering honey was idling? No; every inmate attends strictly to her own business, not looking to the right or left. Such order, neatness, and dispatch, is not discernible in any other community.

The British Bee-keepers' Society is not only assisting people in a pecuniary point of view, but elevating them to a higher plane of thought and action; it cannot be otherwise. Bee-culture is an educator of a high power, all the senses are quickened, the eye notices plants and bloom which before were unnoticed as useless weeds; the ear quickly discerns the note of a swarm, the cry of the robber, the hum of plenty, or the mourning wail of the queenless. The sense of smell tells us of the blooming of the linden, buckwheat, and other flowers.

The Season of 1889.—The past two seasons were nearly failures of the honey crop, and this season has been much better, though scarcely up to an average. It has been a great season for increase, enough honey was coming in to keep up brood-rearing. Bloom has been very abundant, and while at times the sun was very hot there was a cool breeze, and the nights at times were uncomfortably cool. The winds appear to have much to do with the secretion of nectar. I put back all swarms except the first, whenever possible, and this made a deal of work. I will have the rent of my hives, and in many instances I could not collect in any other way, than by extracting the outside combs. In this climate bees are loth to build comb in the fall, yet if they have empty combs, will fill it with good thick honey for winter stores. I have no fears but what these combs will be refilled before winter.

Women Bee-keepers.—Judging from my own correspondence, and other sources, women as honey pro-

ducers are on the increase. I see in a late *Gleanings* that a widow had the management of one of Mr. Manum's apiaries, and that one season she produced five tons of honey in one-pound sections. The next season was a poor one, and the apiary only yielded two hundred and fifty pounds of an inferior article. It is evident from this that management alone cannot produce large yields.

I have done the work in our apiary (numbering seventy-six colonies) almost entirely alone during the busy season. Some days I hived nine swarms; only once did I call for a man's assistance. A swarm clustered in the topmost branches of a greenash tree. He put a ladder against it, and standing upon it could scarcely reach the cluster, with one of Manum's hiving baskets he hit the cluster once and got about fifty bees in it, got stung on his hands, and thought that he was most killed. I had previously cut out the queen-cells from which they issued, calculating to return them. I emptied the few bees he caught in the basket in front of the hive, saying Never mind trying to get them down any more. I went into the house to rest as I did not want to see them leave; in about an hour I looked at the hive and it was full of bees; I supposed that the man got the queen, and the rest returned to their hive seeking her. The strain of bees that I have generally cluster low, but this was a virgin queen, an old one would not have been guilty of such indiscretion.—821 *Hurlburt Street, Peoria, Ill.*

ASSOCIATIONS.

THE BRITISH BEE-KEEPERS' ASSOCIATION.

The monthly meeting of the Committee was held at 105 Jermyn Street on Tuesday, 17th inst. Present: T. W. Cowan (in the chair), Hon. and Rev. H. Bligh, Rev. Dr. Bartrum, Captain Bush, R.N., Captain Campbell, Rev. J. L. Seager, Rev. R. Errington, W. Lees McClure, Dr. Rayner, J. Garratt, Rev. F. T. Scott, and the Secretary.

The minutes of the last meeting were read and confirmed.

The statement of accounts for the month ending August 31st, together with a statement of liabilities to that date, was fully considered. The Finance Committee called attention to the fact that the Association required available funds for meeting its current accounts. Considerable additional expense had been incurred during the present year (1) in conjunction with the Railway and Canal Traffic Act, (2) the arrangement of an additional exhibition at Horsham in conjunction with the Royal Counties' Agricultural Exhibition, (3) in improving the system for conducting examinations.

After considerable discussion, Mr. McClure moved that a general meeting of the members be called to consider the advisability of using the invested funds of the life-members' subscriptions. Mr. Seager and others opposed the resolution. The resolution not being seconded, it was ultimately resolved that an appeal be made to bee-keepers and others who had not supported the special fund connected with the Windsor Exhibition, and to make application to the members who had not yet paid their subscriptions for an early payment of the same.

Communications were read from the Lord Mayor in respect to the Mansion House United Association on Railway Rates.

It was resolved that the Secretary do communicate with the Lord Mayor in reference to the bee-keeping industry being represented on the Mansion House Committee. It was further resolved to contribute one guinea to the Mansion House fund, and to request the County Associations to make their contributions through the Central Society.

Mr. McClure reported that the Lancashire and Cheshire Association had already considered the question, and were prepared to send 1*l.* 1*s.* The Hon. and Rev. H. Bligh was of an opinion that the Middlesex Association would also contribute 1*l.* 1*s.*

The Rev. J. L. Seager moved, and the Chairman seconded, 'That in the event of the Mansion House Committee acceding to the request of the B.B.K.A., Mr. McClure be appointed as the representative of the Association on the Mansion House Committee.' Carried unanimously.

Mr. Garratt reported that he was in communication with the Bath and West of England Agricultural Society in reference to an exhibition of hives, honey, &c., at the Rochester Show next year, and that he hoped to be in a position to report definitely at the next meeting.

The prize schedule for the Royal Agricultural Show of 1890 was considered, several amendments were made thereto, and it was resolved that the same be further considered at the next meeting.

DERBYSHIRE BEE-KEEPERS' ASSOCIATION.

The Derbyshire Bee-keepers' Association held their eighth annual exhibition of hives, bees, honey, and appliances used in modern bee-culture, in a tent on the show-ground on Wednesday and Thursday, September 11th and 12th. Admirable arrangements had been made by the Committee and the able and indefatigable Secretary, Mr. W. T. Atkins, of North Street, Derby, and the display was the largest and best ever brought together by the Society. Between 800 and 900 pounds of honey were on view, the present year having been highly favourable for bee-culture, and the judges state that, as a whole, it was of such exceptional quality that their task of deciding upon the merits of the different collections was by no means an easy one. For the class for 1-lb. sections of honey, the first prize was gained by Mr. R. Burton, of Heanor, with honey of most exquisite flavour, the honours for second place being awarded to R. Williamson, of Shirley, and Miss A. Williamson, of the same place, both of whom showed some exceedingly good honey. In this class Mr. Handby, of Hasland, showed several sections in glass which were evenly filled, but the judges did not award a prize, although the honey was clear, and the flavour and consistency everything to be desired, inasmuch as they considered the specimens too heavily sealed. The tent contained a number of admirably designed hives and other appliances well suited to the pursuit of bee-culture. In an adjoining tent the experts of the Society gave a series of practical illustrations of manipulating with live bees, showing the best methods of driving, making artificial swarms, transferring combs from straw skeps to bar-frame hives, finding queens, &c.; and altogether the exhibition provided an excellent opportunity for gaining valuable information on this most interesting and useful pursuit. The judges were Mr. A. Timberlake, of London, and Mr. C. N. White, of Somersham, Hunts. The following is a list of the awards:—

Bees.

For best stock of English bees, on one comb: 1, John Clark, Loscoe, near Codnor; 2, J. W. Rawson, Selston, and W. Handby, Hasland, equal.—For best stock of foreign bees, on one comb: 1, W. Handby; 2, J. W. Rawson; 3, T. Austin, Alvaston.—For best twelve 1-lb. sections of honey: 1, W. R. Burton, Heanor; 2, R. Williamson, Shirley; 3, Miss A. Williamson, Osmaston-by-Ashbourne.—For best exhibit of comb honey, bar, section, or super, or all three combined, not less than 12 lbs.: 1, R. Williamson; 2, W. Handby; 3, H. Meakin, Beauvale, Newthorpe.—For best 12 lbs. run honey, in glass jars or bottles: 1, W. Handby; 2, R. Bridges, Harstoft; 3, J. R. Bridges, Harstoft; 4, J. Riggott, Spital; 5, S. Turton, Horsley Woodhouse.—For

the best wax, not less than 1 lb.: 1, W. T. Atkins, Derby; 2, J. W. Rawson; 3, J. R. Bridges.—For best bar-frame hive, work of an amateur, moveable comb system, price not to exceed *5s.*: W. T. Atkins.—For best frame hive, for summer or winter use, price not to exceed 15*s.*: 1, W. Handby; 2, W. Coxon, Ambaston. For bar-frame hive, for summer or winter use, price not to exceed 10*s.* 6*d.*: 1, W. Handby; 2, W. Coxon.—For best honey extractors: 1, Mr. Lowth, Riseholme; 2, W. Coxon.—For best collection of hives and appliances: W. Handby and W. Coxon, equal—For best section crates: 1, W. Handby.—Special honey for sale, not for competition: W. Handby and the British Honey and Wax Co., London.

Special prizes were awarded to Mr. John Stone, of Little Cubley, for his collection of foreign bees. Mr. Thos. Austin, of Alvaston, also received a special prize for comb honey.

IRISH BEE-KEEPERS' ASSOCIATION.

At the last meeting of the Committee the following were appointed Honorary Experts to the Association:—Rev. P. Kavanagh, C.C., Ashford, co. Wicklow; Mr. H. Read, Clonoughlis, Straffan; Geo. Woods Hargraft, Woodbrook, Shinrone; Wm. Morony, Fortlawn, Ballyglass.

BURNING A HIVE OF BEES.—Mrs. Mary Viccars, of 23 Winchester Road, Willesden Lane, appeared before Mr. Newton, Marylebone, on a summons taken out by Joseph Tarrant, of the same address, for damaging a stock of bees, a hive, cover-stand, and honey, valued at 4*l.* 10*s.* Mr. Freke Palmer, solicitor, was for the complainant, and Mr. Knapp, solicitor, defended. The evidence showed that the complainant and defendant were lodgers in the same house, at the rear of which was a piece of land which the tenants cultivated. On the 6th June Mrs. Viccars was seen to go up the garden with a piece of wood and paper in her possession. She set fire to the paper and threw it on the ground, and with the stick of wood pushed the burning paper under a hive, which was full of bees. The wax immediately caught light, and the hive and its contents were burning from six in the evening until nine on the following morning. As she returned to the house Mr. Tarrant met her, and told her that she had gone too far this time, and would have to go before her betters—the magistrate. She clapped her hands, and said she should like to serve him in a similar way. In reply to the magistrate, and in cross-examination, Mr. Tarrant said he had had three hives. One stock had died, and the other was very weak, and he was allowing them to die. The stock which the defendant had burned was well established, and would have yielded him a good store of honey had they lived. He had had as much as 93 lbs. of honey from a stock in one year. Mr. Knapp said he would admit the damage, and his offer to the complainant was 1*l.* Mr. Palmer objected to the amount, and called a witness to show that a well-established stock of bees was worth from 30*s.* to 35*s.* Mr. Newton told Mrs. Viccars she was a cruel and malicious woman to burn bees, and ordered her to pay a fine of 10*s.*, 4*l.* the damage, and 1*l.* 3*s.* costs: total, 5*l.* 13*s.*

WING-STROKES IN A SECOND.—The following, according to a French physiologist, in regard to the number of wing-strokes made in a second by various insects and birds, will be interesting to all:—The wing of the ordinary house-fly makes 330 strokes in one second; the wing of the bumble-bee, 240; the *honey-bee*, 190; the wing of the wasp, 110; the wing of the dragon-fly, 28; the wing of the sparrow, 13; the wing of the wild duck, 9; the wing of the house-pigeon, 8; and the wing of the osprey, 6.—*American Bee Journal.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to Mr. J. HUCKLE, Kings Langley, Herts (see 2nd page of Advertisements).

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

SUSSEX OLD WORLD BEE LORE.

To the Edditor.

[2306.] Honrd Sir,—I be unkommonly 'bliged to 'ee for prentin' my letter in yer *Jernal:* I ain't felt so prowd o' mysel' ever sints t' day when our Joe (my firs'born) enter'd t' world, an' that 'ere letter is also my lit'rary firs'born; an' I thinks I'll try my luck agen wunts moor till I gets kwite a lit'rary fam'ly 'round me.

T' squoire 'ee re'd my letter in t' *Jernal*, and 'ee sez—'Reely, Sam, yew s'prise me! I 'ad no ideer ye whair sich a *janus* [genius?], yer stile is kwite klassical!'

'Ee saitinly oughter 'no', for 'ee went to t' 'Varsity till 'ee wor 5 an' 20, an' 'ee noze more Greek an' Latin than all t' other squoires put together in t' cownty.

In my previ's artikle I 'umbly ventur'd tew giv' a delikit hint that I 'ad sum thowts 'bout 'ritin' a book 'bout B's. I ain't wun tew dew things in a 'urry; an' I hev' kearfully considder'd t' matter; an' (atween yew 'an I) I may tell 'ee that I am a goin' tew dew so, in fact I hev' a'ready made surprisin' progress wi't. But afore I begun I thowt t'would be a wize coorse tew persoo t' ask my nabers thair 'pinion 'bout it; an' then I ask'd Phil Hackles 'ees 'pinion (I thinks a good dale o' Phil, 'ee's a kinder pewpil o' moine, an' whair B's are consarned 'ee thinks purty much as I dew), an' wun an' all sed,—

'If we 'ad 'alf t' talons [talents?], an' gumpshun, an' t' grate lit'rary 'billyties that yew've got, Mr. Goodheeve, an' all yer 'noledge o' B's, we most sartinly should 'rite a book on 'em, not only for t' ben'fit o' our generashun, but loikewise for t' good o' posteritee!'

This 'ere last observashun settl'd me at wunts. 'I will,' sed I, 'tis my dooty, an' I ain't wun tew shrink from doin' my dooty at all toimes, be it whar it may or what it may!'

I am a goin' tew kristen (or reather title) it "*Sam Goodheeve, 'Ees book 'bout B's,*" an' a takin' title that is for a B book an' no misteak!

A sartin genelum as I wunt neame heerd t' naybers talk 'bout this 'ere grate lit'rary ventur' o' moine, an' 'ee sed 'ee wor trooly sirpris'd, an' 'ee couldn't poss'bly b'leeve as I wor a-goin' tew 'rite a book on B's.

(I may tell 'ee as a *saycret*, an' now, Sir, doant let it goo furder than us 2, that 'ee's a bit envy'us o' my risin' reppytashun as a 'riter.)

I ain't wun tew back owt o' anythin' as I takes in 'and (never wunts in all my loife did I run my *hinder* in t' hedge), an' I ain't a-goin' tew dew so in t' present instans.

Thair is only wun spot tew cast a slite shadder on my sereen 'orizon jest now, an' this is Sairey (my luvin' woife); she 'as set 'er feace de'd agen my bein' a book-'riter, an' when I menshuns anythin' 'bout it she turns up 'er noaze an' gits a bit crusty; still, take 'er for all in all, she is a aisy-goin' sart, an' I make no dowt I ken soon talk 'er over, otherwize things in gimral is a lookin' up surprisin' well with Sammy jest now, an' 'ee is res'lootly bent on bekummin' a grate man in t' lit'rary world—an' why shouldn't 'ee?

Yesterday arternoon as I wor a sittin' atop o' t' geat

in t' fir-plantashun I fell intu a deep reveree, a-thinkin' on t' grate B book I be now engag'd in 'riting—a stan'ard work o' referens on t' subjek for all toime—an' what a brillyant futur' I 'ad in store, an' my sole farely sim'd tew be melted into sweet rapters [raptures?] as wun thowt foller'd another threw my he'd loike t' waves a ripplin' on t' sayshore in t' month o' Joon. Sammy, my boy! thowt I, yew've not bin born in vane. Yer talons ain't bin hid, loike sum other talonted peeple as I noze on. Yer book on B's shall be a grate sucksess. I ken planely see in t' futur' t' bookcellars a sellin' um over thair counters t' admirin' custumers by the duzen at a toime. I ken see t' prenters, wi' thair shirtsleeves tuck'd up, a puttin' t' letters tewgither as fast as thair fingers can goo, tew print off another 'dishun; an' t' bookbinders a bindin' on 'em as fast as t' prenters 'ands 'em over; an' wun an' all on 'em, prenters an' binders tewgither a blessin' Sam Goodheeve for t' job o' work 'ees book 'as given 'em, an' dowtless a wonderin' all t' toime whair 'ee got 'ee's ideers an' larnin' from. Ay, Sammy, thowt I, yer neame shall soon be a 'ousehold word threwowt t' length and bre'dth o' t' hull airth from wun pole to t'other.

Sich luvly ideers as these whair a-flowin' threw my he'd, an' I s'pose I felt a bit drowsy at t' thowts o' my kummin grateness, for I suddenly foun' mysel' a sprawlin' on my back off t' geat slap into a big puddel o' muddy water, my 'at crush'd owt o' all sheape over my eyes, an' my pipe broke all t' smithereens.

(N.B. 'Xperience tayches me that when next I gits into a deep reveree tew sit seafely on t' groun' an' not tew coort disaster a sittin' a 'top of a 'igh geat.)

Now, Honr'd Sir, I may tell 'ee (in strick confidens) that when a grate book is 'bout tew kum into t' world t' rule is for all t' Edditors in Lunnun tew put thair he'ds tewgither an' 'gree 'mongst thairselves tew blow thair trumpets in foine stile t' 'nounce tew thair rayders, an' t' world in giniral, that Mr. So-an'-So's book will soon 'pear.

Now this is jest wot I wants yer tew dew on my 'count! Tew blow yer trumpet, loud as yer loike, for Sam Goodheeve an' 'ee's book, an' if yer doant 'no 'ow t' set 'bout it I will dewly giv' yer an instans or 2 as follers for 'xample:—

'T' publik will be dowtless pleesed t' 'ear that our good fr'end, that iley sucksessfool B. keeper, Mr. Sam Goodheeve, is 'bout tew 'rite a noo book 'bout B's,' &c., &c., &c.

If that wunt dew try this—

'B. keepers giniraliy threwowt t' world will o' a de't o' 'tarnal gratitood tew Mr. Sam Goodheeve for 'ee's 'xershuns in furtherin' a 'noledge o' t' practise o' rashional B. keepin'; an' we hev' t' playsure o' intimatin' tew our rayders that 'ee is now engag'd in 'ritin' a noo *lit'rary book* (!) on t' subjek,' &c., &c., &c.

I think now, Honrd Sir, yer will 'no 'ow tew dew it a'most as well as I could dew it mysel'. I be very busy jest now or I would giv' 'ee 'nother 'xample, but toime is pressin', an' I be jest off t' tend t' Squoire: ee's got a shootin' party t'day, and we be a goin' tew driv' to covers.—I am, Honrd Sir, your verry umbel Serv't, SAM GOODHEEVE.

BEE-KEEPING FOR COTTAGERS.

VI.

[2307.] TAKING UP STOCKS.—There are many,—aye, far too many, bee-keepers who still have what is called a 'taking up' or 'putting down' of certain stocks. Well, while that practice remains, a few words as to the best methods of taking honey from skeps may be welcome.

Let me say, first, that the practice of leaving the 'taking up,' as is often done, till Michaelmas, should be given up without delay. More honey is taken, and with less trouble, as soon as the honey-flow ceases than later in the season, and therefore, if not already done, preparations for taking the honey should now be made.

In 'taking up' it is a good practice to mark those stocks which when lifted are the heaviest, and also those that are the lightest. Thus those are got rid of that with the let-alone bee-keeper are likely to be of least use to him. The light ones because, without feeding, they will probably die, and the heavy ones because the bees are almost sure to have too much of the space required for eggs occupied with honey the following spring.

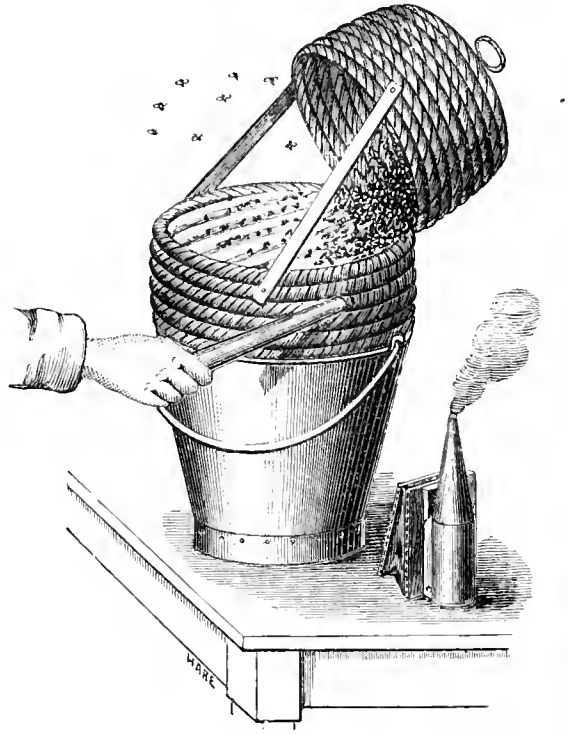
In marking the heaviest and the lightest, it is well to be sure that those left have sufficient food to last through winter and spring, and are headed with young queens. Stocks which have thrown out swarms will have young queens; so also will casts, which should be left in preference to stocks containing old combs, if they are well supplied with food.

DRIVING.—There are two methods of removing the combs from the marked stocks while keeping the bees: they are *driving* and *bumping*.

In driving, the bee-keeper drives, or compels his bees to run from the inverted stock hive into an empty one placed above. There are two methods of driving:—

1. Close driving.
2. Open driving.

CLOSE DRIVING.—The first step with either driving or bumping is to force a puff of smoke into the mouth of the hive, and then the stock should be carried to a distant part of the garden. If most of the honey is sealed, the bees will be slow at 'gorging,' and operations may be hastened if, when the smoke is given, the hive is rapidly turned over, and the combs are sprinkled with honey made thin with a little warm water. When this is done, throw a cloth over the combs, and leave the stock for a few minutes, or while the others are



Open Driving.

similarly treated. The bees in the stocks to stand may be prevented visiting the other hives if a few pieces of grass or straw are pushed into the entrances, ends first.

The next step in close driving is to remove the cloth, driving the bees down amongst the combs as it is being removed. An empty hive, mouth downwards, should then be placed over the stock, and a cloth tied round where the two hives meet to prevent the escape of bees.

Now clap the sides of the lower hive with the palms of the hands sufficiently to shake, but not to break, the combs. The bees will then commence running upwards into the empty hive, and in about a quarter of an hour the lower hive will be almost free from bees.

Open Driving.—In open driving the empty skep is placed at an angle as shown in the illustration in previous page with the combs running towards the points where the two hives meet.

Bent wires and a skewer, or specially made driving-irons, must be used to keep the skep in position.

The clapping of the sides of the lower hive must proceed as in close driving.

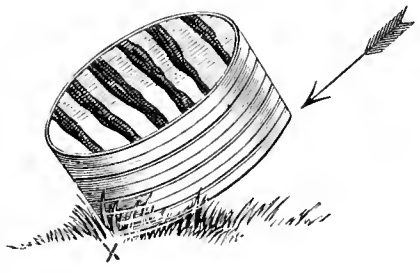
Many bees will no doubt fly about, but most of them will run over the point where the hives meet into the empty hive. By a careful look-out, the queen may be seen as she passes into the upper hive.

Each lot of bees should be returned to their own stand for the other bees flying about to join them, and when all are settled, or towards evening, they may be united, or disposed of as the bee-keeper thinks best.

Disposal of Bees.—The bees thus saved from the sulphur-pit may be of great use. A few lots, making up a weight of five or six pounds, may be used in starting with a bar-frame hive; or one or two lots, more or less, may be joined to each stock which is to stand the winter. The stocks receiving the additional bees will pass through the winter better, and consume less food, than if left with their own number of bees.

Driven bees may be united by simply shaking them together, but they must not thus be united to another lot of bees on combs. When driven bees are to be united to a weak colony, both lots—the bees among the combs and the bees in the skep—must be sprinkled with thin syrup or honey, into which have been put a few drops of peppermint, that the scent peculiar to the different lots may be destroyed, and fighting prevented. The queens of united lots will fight until only one is left, unless the bee-keeper leaves one he wishes to keep, removing the others before uniting.

Bumping.—This is a very quick method of removing the combs from a stock. After the stock has been prepared as for driving, the bee-keeper should take hold of the stock by placing a hand on each side of the hive, which should be so placed that the combs run from side



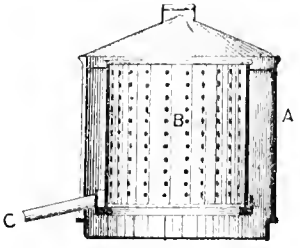
Bumping.

to side, or from one hand towards the other. The hive should then be lifted a little from the ground, at the same time raising the side nearest to himself much higher than the opposite side. If, then, the hive is set down sharply in the direction of the arrow, the X shows the point at which the skep should strike the ground; and the combs will be broken from the sides of the hive, and fall one upon another away from the operator. The bee-keeper must then, without the slightest delay, remove the combs, brushing back into the hive any bees that may be adhering. This is a method of clearing a hive of its combs, whilst saving *most of the bees*, that requires great care, or, in the handling of the tender combs, the whole colony may be spoiled.

Preparing the Honey for Sale.—In the districts bordering on the fens, where a great deal of buckwheat is grown, the practice of slicing all the combs, and receiving from them an undesirable mixture, is still very common. Frequently a stock will contain at least two kinds of honey, which are easily noticed, particularly in moderately new combs and cappings. When such is the case, all parts of the combs containing the same quality should be cut away, sliced with a sharp knife, and separately drained. My plan, before I invested in more improved and more expensive methods, was to get one and a half yards of cheese-cloth or canvas three quarter yards wide, which, when cut in two, will make two squares. One square I laid in a pan, and from another pan poured on to the canvas the sliced combs. I next tied the corners of the canvas together, and hung them on a stick, which rested across the backs of two chairs. Thus, without much trouble, I was able to get my honey clear, and when put into bottles and nicely labelled, fit for good company.

Those who have much honey to drain, might invest in what is termed a honey-strainer, which is a most useful article.

Converting the Combs into Wax.—This used to be with me, and is still with many bee-keepers, the most distasteful part of bee-keeping. One of the easiest methods is to tie a stone in the canvas containing the sliced combs, from which the honey has been drained, and drop it to the bottom of a good sized pan of water. When the water boils, the wax will rise to the surface. To dislodge all the wax, the canvas bag should be gently stirred with a stick. The wax may be removed from the surface of the water when cold, and afterwards moulded to any desirable form. Much time and trouble are saved by the use of a wax extractor. We give an illustration of the Gerster wax extractor.



Gerster's Wax Extractor.

—C. N. White, *Somersham, Hunts.*

POINTS OF EXCELLENCE IN JUDGING HONEY.

[2308.] The questions revived by Mr. Chenevix (2295, p. 399) are of much importance, and I have often wondered why there was not more about them in the *Bee Journal*. In the *Bee-keeper's Record* for 1885, Mr. W. Broughton-Carr wrote most fully on the subject, and indeed I do not see what more can be said about it. However, as many of your readers may not possess the volume of the *Record*, I hope the whole matter may be gone into, and some settlement arrived at to guide judges in their estimation of the standard points of excellence in honey.

The Irish Bee-keepers' Association's provisional standard is so different from Mr. Carr's, and from what I, and any judge with whom I have ever co-operated, have adopted, that I can scarcely regard it as seriously in-

tended. At any rate it bears tokens of having been hurriedly drawn up.

Mr. Chenevix says that 'in the main the marketable value should be considered' in laying down points of excellence in honey, and he is quite right. Now, when a buyer wants some pound sections of honey, he selects those which are best filled; and if he knows what he is about, he will reject all that have not all the cells sealed, just as a good judge will, I think, disqualify any unsealed sections. Therefore the first point the judge will see to is, what lots have the most complete and perfectly finished sections. Next will be decided the colour of the honey and the capping. Then will be settled which lots have all their sections uniform in colour, evenness, &c.; and this is about all that the eye can do, for the 'get-up,' or dressing of the sections with ornaments of various kinds, as it is not permitted in many shows, shonld be the last point to be considered, and should have a very low figure allowed it.

Having got so far, the flavour and aroma are to be weighed, and here comes in one of the most difficult points of the whole, for as there are many tastes so there will be many opinions. For all that, it is of much importance, and intelligent judges, if they agree on all other marks, can always obtain assistance from some disinterested outsider.

Next, as to extracted or run honey. It will be in much the same way as the buyer of comb honey in sections proceeds that the purchase of honey in bottles acts in the shop or market. He will take the honey which is thickest, nicest-looking, and brightest, and that where taste and smell commend themselves to him. Of course he will pass over all imperfectly filled vessels, while the label on the glass would not do much to make him buy it; and precisely so ought the judges to proceed in their selection of what deserves the prizes. So that the codes of standard points in judging honey that I have been, and still would be, guided by, are much as follows:—

For Sections.		*For Bottles.*	
Completeness and finish	8	Consistency and density	4
Colour of honey and comb, &c.	5	Colour and brilliancy	4
Uniformity	2	Flavour	5
Flavour and aroma	3	Aroma	3
Get-up	2	Uniformity	2
		Get-up	2
	20		20

I hope these few practical hints may be of some use in assisting to frame such a scale of standard points as we who occasionally officiate as judges would hail as a blessing and a boon.—H. W. Lett.

JOTTINGS BY WOODLEIGH.

[2309.] Patent Rights in Glass Sections.—In a previous number of *B.B.J.*, *vide* p. 338 (No. 2251), I jotted on glass sections, questioning the right of Mr. Hewitt to mulct any bee-keeper who wishes to use pieces of glass in the construction of sections to hold honey in the sum of 2*s.* 6*d.* for a license. This jotting, or at least the last period of the jotting, appears to have given great umbrage to Mr. Hewitt.* I am very sorry if I inadvertently stated anything in the jotting likely to injure Mr. Hewitt either in the sale of his glass sections or in the sale of licenses to bee-keepers wishing to avail themselves of his method or principle in making glass sections. I can assure Mr. Hewitt and readers of 'ours' that nothing was or is further from my thonghts 'than injury to others' in any jotting from my pen in these pages; neither do I question Mr. Hewitt's right to charge whatever he may think fit to persons who desire to make glass sections according to his (Mr. Hewitt's) method. My contention then and now is that I do not consider it just that men like Mr. Bonner-Chambers, Mr. Rushton, Mr. Nicholson, myself, and others, who have made, used, exhibited, and sold glass sections years previously, should have to procure a license from Mr. Hewitt to continue to make in the future glass sections such as they had made in the past.

Swarm of Bees in a Quickset Hedge.—A bee-keeper who lives about half-a-mile from me had a swarm of bees settle in a quickset hedge, and was not noticed until they had built two pieces of comb as large as plates. They had stored honey and pollen, and a few eggs were deposited in the middle of the largest piece of comb, so that they evidently intended staying in their exposed position. When found they were hived in usual way, and formed a good stock afterwards.

Standard Honey Jars or Bottles.—I notice 'A Shropshire Bee-keeper' (2285) wishes for a standard jar; that is, I imagine, a jar to hold 1 lb. of honey, and of one shape and size throughout the country. There would certainly be advantages in such an article, but I fear it will be a long time ere we see this consummation of our wishes. A cheap, plain, tie-over jar that suits some dealers in honey would not sell in other districts. We must endeavour to suit the class of trade we are dealing with, whether it is Belgravia or the East End of London.—Woodleigh.

* We regret publishing the paragraph referred to, as we find it was not true in fact or substance, and was the result of misapprehending the true facts of the matter.—Ed.

IRISH BEE-KEEPERS' ASSOCIATION.

[2310.] Some criticisms on our Association having appeared in your last issue, I ask the favour of being permitted to reply.

I wish, first, to notice the letter of 'A Bee-keeper' (2305). The second paragraph begins thus: 'Well, the last and most serious error of this institution is the conditions set forth for examination of experts.' I hope no hasty readers will conclude from this that a number of errors had previously been pointed out. As a matter of fact, only one other subject is dealt with, and that a subject with regard to which the Association has incurred no responsibility whatever. It is the standard for judging honey, drawn up, not by the committee, but by a conversational meeting of members, in no way entitled and not in the least claiming to represent the Association. Moreover, it is a mere *suggestion* thrown out by those members in order 'to obtain the benefit of public criticism' previously to bringing the matter before the committee, which, of course, means that the members are quite open to conviction by such criticism, and willing, if convinced of any defects, to make alterations. Surely it cannot be otherwise than a praiseworthy act that members of an Association should work in this modest and cautious way towards the achievement of a most useful but very difficult task, even if perfection has not been attained at the first step. Rome was not built in a day. I am glad also to be able to say that I do not think there is really any difference between even this purely tentative proposal of individual members and the opinions of 'A Bee-keeper,' but that the criticism of the latter arises from a misconception. In his objections to twenty-five marks being allotted to 'get-up' of sections, he evidently assumes that by 'get-up' is meant something that would increase the cost of their production. This is not the case. By 'get-up,' or, as it is explained, 'preparation for marketing,' is meant not glazing or ornamentation, but that the sections should be, to use the 'Bee-keeper's' own words, 'as clean as when they left the factory;' that the combs should not be bruised, as they often are by careless handling: that there should be no defects in the wood, and the like; to all of which I think the 'Bee-keeper' would assent. Though I protest against any faults in the 'Standard' being regarded as

errors on the part of the Association, which has not adopted or even yet considered it, still I am very glad that the 'Bee-keeper' has noticed it, and wish that other bee-keepers would state their opinions.

As to the conditions set forth for 'examination of experts,' it is not fair to attack these in a general vague way, without specifying the fault found with them; when this is done, I shall be very happy to enter into the discussion of the subject.

Another criticism which requires notice is that of Mr. Furlough O'Bryan, in the 'Echoes,' who says, 'We read of bee-tents and shows in almost every county in England, but only two or three in Ireland. I am three years a bee-keeper, and would go twenty-five miles to see a bee-tent, yet never saw one. The Irish Association does not seem to desire to establish county branches.' Now, no comparison can justly be made between England with its immense wealth and dense population and Ireland with its small resources and thin population; there are single counties in England containing as much as or more than half the population of the whole of Ireland. As to the bee-tent, though I am not able to make a promise binding on a future committee, yet I may say I think it extremely probable that Mr. O'Bryan will next year see our bee-tent in his district if early in the season he would satisfy the committee that the number of visitors to the tent would probably be sufficient to justify its being sent there. The best time to make an application would be soon after our Annual General Meeting, at which the Executive Committee is appointed; this will probably take place in Easter week, and an account of it will appear in the *Bee Journal*. As to our not seeming to desire to establish county branches, we should be very glad to have really efficient branches established, and have taken one step in that direction by appointing District Hon. Secs. in various counties. Further steps should be taken by the bee-keepers resident in any district where a branch is desired, who would have the local knowledge necessary to determine whether it is feasible. An application from them stating their belief in the future efficiency of the branch, and the action which they propose that our Association should take in the matter, would, I am sure, meet with favourable consideration from our committee. A branch formed by the union of two or three adjoining counties would perhaps be more likely to prove successful than one limited to a single county.—HENRY CHENEVIX, Hon. Sec. I.B.K.A.

Echoes from the Hives.

September 16th.—May I furnish you with a few particulars which may be of interest, and perhaps be an incentive to others better qualified to favour you with an occasional 'Echo.' Well, I think I may safely say this has been a good season when contrasted with the memorable last. We are close to the heather here, and I may mention having heard several old and experienced bee-keepers say they never saw it so beautiful or in such splendid condition; but the weather—there's the rub—was not favourable. August came and brought rain, rain, rain, so that September was ushered in before we got any real 'bee-weather.' Still, I hear of full crates from this pasturage. Two bee-keepers residing about six miles from Newcastle conveyed their bees to Slaggyford. On one of the stations on the 'Alston Branch' there were twelve or thirteen stocks, which I heard did remarkably well on the moors; but some evil-disposed person or persons upset the whole lot on Sunday night, the 8th inst. I saw them as they were returning per rail on the Monday morning. It was a pitiable sight to see how they were smashed up. Such persons deserve what they have not got. I would have liked to have heard of them being caught, either by the bees or the law. If the bees had only got at them and left them *hors-de-combat* beside their contemptible work, it would have served them right. I am afraid I have taken up too much valuable space already, but I must not omit to mention our annual flower show was held on Saturday last, the 14th inst. Prizes were offered for section-honey and Observatory hive; Mr. Foster, Plainmellor, securing first prize for sections, Mr. Little, Plainmellor, second. There were two Observatory hives exhibited, but I have not heard the result. Mr. McAdam, of the local Society, officiated as judge in the absence of Mr. Hedley (expert, Oxham), who did not put in an appearance.—ROMAN WALL.

Honey Cott, Weston, Leamington, Sept. 21st.—I have made up several stocks of driven bees by giving them five or six combs each and feeding them gently for a few days till there were some nice patches of brood in them, and then feeding them up more rapidly. On the 9th of September I went to Llandudno for a few days, and seeing bees about the town and on the Great Orme's Head, I tried to find out any one who kept them, but could not. One afternoon there was a young man who I found out kept a few stocks, about one and a half or two miles from Conway. I went by train to Conway, and then on to where he lived. He had been driving several stocks out of skeps and uniting two or three lots together, had put them in skeps, and was feeding them up, letting them build their own combs. He said he had done the same last year, and the bees wintered well and swarmed this year. He was keeping two swarms which were very heavy with honey, the other two stocks he was feeding up. I tasted his honey, which was splendid in flavour. The hills were covered with heather about two miles away, and I fancy his bees must have gone there. Having heard that there was to be a honey fair the next day at Conway, I went for two or three hours, and saw a small quantity of sections and bottles offered at 1*s.* 3*d.* per 1 lb. bottles, and 1*s.* 3*d.* for sections. I saw some sold at that price. There were several that had brought their honey in two or three gallon tins, and a quart measure to measure to out. It was a very hot day, and the bees out of the town had found it out, as some bottles had been broken, others had leaked through the paper or parchment; they were getting rather busy when I was there, and I left about 11.30. I expect in the afternoon they would have a rather lively time of it when they measured the honey out by the quart; they were asking about 5*s.* per quart, but whether they would be able to keep it up to that was a question. There would not be many cwts. while I was there, and I rather regretted that I was obliged to leave to get my train to come back. I recommended two or three to take the *B.B.J.* and *Modern Bee-keeping*. The next day I went to see a chemist at Coventry, who had asked me to send him a sample of extracted honey (I had sent this sample a week before, and as it was candied, I got a letter from him, saying he did not expect I should have sent him old honey!), so when I saw him, and told him that it had not been taken out of the hives more than about six weeks, he was very indignant, and said he had handled more honey than I had, and knew what new honey was, and that Californian honey was as good as that, &c. I told him I would liquefy it if he liked. At my request he warmed it, but I left him rather doubtful about it; all I could say about the honey being well ripened before it was extracted, and being thick, the low temperature had caused it to candy so early, did not appear to satisfy him. He appeared to be between sixty and seventy years of age, but certainly if he thought it was old honey he was mistaken for once, even if he never was before.

Who can tell us what is the best way to keep honey from candying except by heating it over boiling water, which has a tendency to deteriorate the flavour? I have now begun to get stocks squared up a bit preparatory to packing them for winter. I have put pieces of camphor among the combs that have been extracted, also amongst

the sections that have comb in them, to keep the moths away.—JOHN WALTON.

South Lancashire, Sept. 23rd.—In the early part of the season bees in any strength did well. Our apiary of nineteen stocks which I examined on June 6th was in splendid condition, only one poor colony amongst them, and most of them completing the first rack of sections. One stock, worked on the tiering principle, had 40 lbs. of honey in the second storey. I took three stocks to the heather the first week in July, hoping to get a supply from a fine piece of clover near, but the weather broke up after they had been there two days, and the clover supply 'did not come off.' As I was going from home for nearly a month I took dry-sugar feeders and put inside, and it was well I did so, for there was scarcely a good bee day the whole month, although we had some splendid weather in the south of England. We got three good days, August 17th, 18th, and 19th, followed by a poor week, when things brightened up, and from the three stocks I brought home last Saturday, the 21st inst., seventy sections, with but a few exceptions, well filled and sealed, the bees having had to work out their comb from sheets of foundation put in by Howard's method. Besides this they have filled up below, some of the combs being very heavy. Will some of your readers inform me how do bees winter on heather honey? Is it liable to give them dysentery in the spring?—ST. DUNSTAN.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

J. L. D.—*Wintering Bees.*—1. It is the custom in the colder states of America to winter bees in properly-constructed frost-proof houses or cellars, where the temperature can be kept at a certain degree. In such places they can be successfully wintered, but in an ordinary dwelling where the temperature would be constantly varying it would be most unwise to winter them. Several bee-keepers have, in the past winters, buried their bees in 'clamps,' as potatoes and other roots are done, yet we have never heard of any great success. An account was given in this *Journal* by Mr. W. B. Webster of the successful wintering of two colonies in such a receptacle, but he informed us afterwards that spring dwindling ruined both colonies. If you can make a frost-proof house, and also provide against any change of temperature in same, do so; but do not try it in a dwelling-house. 2. *Stealing Honey.*—We are very much grieved to hear of such dishonesty; we trust yours is but an isolated instance.

H.—*Honey Candying.*—Granulation of honey is the best proof of its purity. Bee-keepers should explain to their customers that adulterated honey does not granulate. 2. *Melting Honey.*—Honey should never be placed directly over a fire to melt it. The least over-heating will cause its essential oil to evaporate and give it a burnt taste. It should be put in a tin or copper vessel, and this in another large vessel containing water. The application of even water heat will cause the honey to lose the greater portion of its flavour. Honey after heating never granulates thoroughly, becoming turbid or mottled in appearance, thus rendering it very unsaleable.

JOHN C. WALTON.—1. *Preventing Propolising.*—By using tallow or vaseline. 2. *Getting Bees off Frames.*—Shaking bees off the frames is the most rapid way of dislodging them; but carbolic acid solution, same strength as for quieting bees, applied with a feather, would drive the bees before it. 3. *Syrup for Uniting.*—This syrup scented with a few drops of peppermint or other similar strong smelling essence.

THOMAS ALLINSON.—*Honey Dew.*—The honey has been gathered from the leaves of trees, lime or oak or other tree. It is not bad tasted, and could be used for any purpose that honey is used for. We should say that bees might be fed with it if there be no other mode of utilising it. It is, in fact, honey-dew honey.

AARON DAVIES.—Honey-dew.

F. W. WRIGHT.—*Extracting Heather Honey.*—Heather honey may be extracted with ease when fresh gathered, but in a few days it settles into a solid jelly, which cannot be extracted by an ordinary extractor. The comb should be cut into cubes, placed in a conical bag, and exposed to the heat of a fire, when the honey will exude. Heather honey can be extracted by means of the Raitt honey press.

AMATEUR BEE-KEEPER.—*Sedum spectabile.*—This is one of the most useful autumn plants for bees. See Dr. Bartrum's remarks on it in our last issue, p. 403.

J. TURNCOCK, JUN.—1. *Honey.*—We have received several sections of honey this year in varied modes of packages, but in every case they had burst from their attachments, making a sad mess. Yours arrived in a perfect state, with not a cell injured. We thank you for the section, and for the care bestowed on its packing. The honey was of an excellent quality, and should realise a good price. 2. *Carrying out Dead Grubs.*—If the bees carry out drone grubs, it is because they are not wanted; if worker grubs, it is generally a sign of insufficient food; sometimes of weakness through want of nutrition. 3. Your heather experience will stand you in good stead in future years.

BEGINNER.—*Driven Bees.*—Most likely the queens will lay for a short period during the autumn, but much depends on the weather. Give each stock fully 30 lbs. of good syrup. Had you given them even one built-out comb in each stock it would have assisted them greatly.

J. K.—*Extracting.*—It will be best for your bees if you do not attempt to extract now. If you could rely upon fine, warm weather for the next fortnight, it might be done, but the best way will be to at once remove any combs in excess of requirements, or, where stores are deficient, feed up as rapidly as possible. We are not aware as to the patent rights over the feeder you name. Messrs. Neighbour might help you.

S. O.—*Suspicious Comb.*—Only chilled brood. If you are still feeding this stock, put salicylic acid in the syrup.

NORTH COUNTRY LAD.—Case of foul brood.

T. J. R.—The bee forwarded is not the queen. The probability is, that, though you have not succeeded in seeing her, she is all right.

WORKER.—*Shallow Frames for Extracting.*—These should be 6 in. in depth and full 1½ in. from centre to centre. Use ordinary brood foundation. Let the shallow body-box be the same size as the brood-chamber, and fill it with the frames. When nearly full, place a fresh lot between that already on and the brood-chamber, exactly the same as with section racks.

HONEYTOWN.—*Broodless Hive.*—We should introduce a fresh queen at once. Doubtless the bees have superseded the old queen, but it is much too late for her to get fertilised.

E. E. EVANS.—*Sugar for Syrup.*—The sugar will do, but it is not by any means first class. Could you not get some *cane* lump?

S. P. J.—*Virgin Queen.*—See reply to 'Honeytown.' It is getting too late in the season to admit of proving your young queen, although, as you have drones flying, she *may* have been fertilised, but it is unwise to risk the contrary.

THE BRITISH BEE JOURNAL

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Editorial, Notices, &c.

BRITISH BEE JOURNAL.

We desire to tender our best thanks to those who have so kindly assisted us in promoting the increased circulation of the *Journal* since its reduction in price. We are much gratified with the increase (fully 20 per cent), which has so far taken place. We venture to hope that our kind friends will continue their efforts on our behalf; if each subscriber would secure us one additional subscriber, the success of our *Journal* as a penny weekly will be an accomplished fact. We shall be glad to supply specimen numbers where required.

A VISIT TO A NOTED WARWICKSHIRE APIARY.

Early in the morning of September 2nd, the writer and Mr. A. D. Woodley, of Reading, were wending their way to the G. W. Railway Station, at the county town of Berks, to catch the first down train—yclept the 'Paper Train'—and punctual to time it steamed into the station and discharged its cargo of 'news,' which was scarcely on the platform before the news-boys and girls were busy folding the sheets for distribution far and wide, while others were off into the town with bales that seemed almost too much for the slender shoulders to carry. A few passengers alighted, and another contingent took their places. The engine, like a true son of Vulcan, belched forth volumes of smoke and steam, while the suppressed hissing of escaping steam would lead one to suppose that some imp of mischief was sitting on the safety valve. At length the guard's whistle was sounded, and we glided out from the busy scene in the station into the quietude of the beautiful valley of the Thames—our track for some twelve or fourteen miles running parallel with the course of Father Thames—and though we were rushing along like a pea out of a peashooter, yet we ever and anon caught glimpses of some of the fine views for which the district is noted. Here and there we noticed a fine specimen of river-craft moored in some quiet sequestered nook or bend of the river, the perfect embodiment of pleasure and peace combined. Then, again, down some glen or gorge we caught sight of the picturesque cottages, with smoke already curling from the chimneys, showing the inmates were astir preparing the frugal meal ere they once more went forth to the work of the ingathering of the harvest, which comes as a bright picture in the otherwise dull monotony of country life.

Here we are at Didcot Junction, and we have to leave our fast steed to speed on towards Penzance, and take our seats behind an engine of less staying powers, which stopped at all stations afterwards. Leaving Didcot behind, we start onwards, watching here and there the harvesters wending their way to the fields of corn, and in a few instances the sickle was busy at work in the hand of some more eager or stronger specimen of that bold peasantry our country's pride, who may have been a firm believer in the old proverb that 'the early bird catches the worm,' or that one hour in the morning is worth two at night for work. We look in vain for a hive of bees from the window of the train; we have not seen one in thirty miles. We now approach the historical seat of learning, Oxford, with its forest of spires, domes, and pinnacles; and as one looks on the time-worn towers of its ancient strongholds of learning, on the piles of architectural beauty adorning the landscape, it creates an impression of wonder and beauty endeared by a thousand hallowed associations (such as none other than one's own birthplace can recall); but as one moralises on the beauties of ancient architecture, and in the mind's eye links the present with the past, the modern system of travelling whisked us out into the country amid 'fresh scenes and pastures new.' Here are the harvest teams slowly rumbling along towards the fields, while the merry teamster is whistling a favourite ditty, and not even the approach of the burly form of the farmer seems to rouse him out of 'the even tenour of his way,' or induce him to whip up his team to a quicker pace. At length we reach Banbury; here are boys perambulating the platform with baskets of *real* 'Banbury cakes,' from the original establishment of Mr. Brown.

Leaving Banbury, noted for its Cross and its cakes, we are soon on the confines of the county of Warwick, and, with little to note except the abundance of the harvest all throughout the journey, we glide into the station of Leamington, noted for its spa or springs of mineral waters.

After leaving the station, we made inquiries as to the whereabouts of Weston, a small village some four or five miles out of the town. Seeing a postman, and thinking him a likely man to direct our steps to the 'desired haven,' we inquired, and received full and explicit directions, kindly putting us into the track under

the railway bridge. After thanking our 'postal guide,' I said, jokingly, to my companion, for remember we were on pleasure bent, 'I will guarantee if we ask half a dozen people to direct us to Weston, that we shall get as many different routes pointed out as the nearest cut to the place.' No. 2, when asked, told us it was eight or nine miles; No. 3 said it was about six miles, three to Cubbington and three across some fields. Our next informant was a limb of the law, a P.C. He was not quite sure as to distance, or the nearest way to it, but knew there was a 'Reformatory' there, and thought we ought to go back some distance and inquire the way to Cubbington; but hailing a butcher's boy, we received the laconic reply, 'First turn to the right, then first to the left and second to the right again; that would bring us to the oak-tree in the centre of England, then straight away.' We walked on some distance, looking for a place where we could get some refreshment, but could not see either coffee-house, café, or tavern. Meeting one of W. H. Smith & Sons' newspaper boys we inquired for one, and were told there was one about a mile further on. This acted as a 'gee-up,' and keeping a look-out for any bee-keepers on the road, we soon arrived at the half-way house, where host was kind and ale was good, and with a glass of ale and a biscuit—from the town we came from—we pushed on, but getting outside we espied some one driving after us like the driving of Jehu, for he drove, if not furiously, very fast. It was our mutual friend, Mr. John Walton. He, kind soul, had been to the station to meet us with a horse and trap, going through the town, the nearest cut to the station, while we came out by the oak-tree. After a hearty grip of the hand, we were soon *en route* to Honey Cott. It is wonderful how time, aye, and distance too, flies past when one is interested in a friendly chat, and soon we were at our destination. A hearty welcome from Mrs. and Miss Walton made us feel at home, and while our kind hostess busied herself getting lunch, we three bee-keepers compared notes as regards the season, and decided that '89 should be written down as a good bee year. After doing justice to the viands, we repaired to the apiary, and what a sight met our view! Here was a veritable city of bee-hives, facing in all directions, I might almost say, to every point of the compass. Evidently our veteran bee-keeper, when he originally planned out his apiary, placed his hives (as did another veteran General his army at Waterloo) in squares, but with entrances facing inwards, and as the number of hives have increased, every spare yard of ground has been utilised, until now there is scarcely a square yard but has a colony of bees on it.

Mr. Walton states he has proved beyond doubt that aspect does not make any difference as regards honey-yield. Here were hives long enough to hold two colonies, named the 'Mammoth,' while others have painted on the front the erstwhile familiar heading to 'Jottings' in these pages from the pen of 'Amateur Expert,' '*Mel supit omnia*,' also a few hives of the 'Irish' pattern, but the majority are of the gable-ridge or span-roof pattern. At one corner, near the extracting-house, were two tall piles of supers of rectangular pattern, containing a number of shallow frames for extracting. The honey had been extracted, and Mr. Walton had tiered them up on the hives to be cleaned out. This, I think, is a good plan, as it does not upset the bees so much as distributing them all over the apiary. This brings us to the manipulating-house, in the corner of the apiary farthest from the dwelling-house. Here we found an extractor of our friend's own make, with handy arrangements for straining the extracted honey out of the extractor into large tin cylinders, with valve at bottom, while a simple plan of fixing two strips of wood across the inside of the strainer, which also is made of tin and fits on the top of stock cylinder, forms a rest on which to place the frames of honey while uncapping, the cappings falling off the knife into the strainer without any mess or loss. A lamp is used to keep the water boiling, to heat the uncapping knives, while an escape is made at the top of the window for any prospecting bees that may gain admission during manipulations.

At another corner of the apiary is a storehouse for crates of sections, with bench close up to the window, on which the scraping, cleaning, and glazing of sections is done. This part of the work is done principally, I believe, by Mrs. Walton. But 'Percy,' Mr. W.'s youngest son, is calling us to dinner, so we repair to the hospitable board and discuss the good things prepared for us, afterwards going for a walk to the 'Reformatory,' which Mr. Walton showed us over, then back to the village church, where he pointed out anything of interest both externally and internally; and as he superintended the work of restoration, he was able to give us every information. Then, with a call at the village smithy, to see some bees which appeared very quiet, although the blacksmith repeatedly assured us they were wonderfully strong, we return to the apiary, when Mr. Walton opened several hives and showed us some of his quiet Carniolan bees; and certainly they were very quiet, and clustered close on the combs when lifted out of the hives. They were in splendid condition and healthy; the patches of brood of regular formation attested the prolificness of the queens, while in the extracting-house were lots of mailing cages in which our friend had received fresh strains of blood to introduce into his apiary, also tending to keep the race pure. To a casual observer there is very little difference between the common English bee and the Carniolan bee, but on closer inspection the markings are distinctly different.

Mr. Walton has also some Ligurian bees noted for gentleness; he said, 'You must just step down into the apiary again—I want to show you some of my bees that you can put your hand between the combs, and they won't sting.' With a primitive smoker composed of a short india-rubber tube and a tobacco pipe he blew a little smoke, rolled back the quilt while so doing, and then proceeded to take out the frames. The bees were very quiet and inoffensive, but some marauders, ever on the alert to steal, began helping themselves to the honey in the combs, which roused the instinct of self-preservation in the Italians, and we had to don our veils and close up quickly. To show that the hives stand pretty closely together, I may mention that Mr. Walton's apiary numbers between seventy and eighty hives; that the whole number, with extracting-house, stand on a plot of ground 29 feet wide by 47 feet long.

Over a cup of tea Mr. Walton showed us his medals he had won and his certificates that had been awarded to him far back into the seventies: when we moderns get into a chat with an old hand—one who was in the front rank while we still clung to the old-fogeyism of straw skeps, the let-'em-do-as-they-could system—it is calculated to act as a sedative to one's ambition. But, as Dickens used to say, '*tempus is fugiting*,' and the time came to say 'Good-bye' to our friends, Mr. Walton kindly driving us to the station, and on the journey beguiled the moments with tales of bees—how he bought his first swarm of Ligurians from Mr. Abbott, of Southall, many years ago, and got them home; how he helped to get a large straw Pettigrew hive off a corbel bracket in front of a house, weighing ¾ of an cwt., and how his helper in the job got stung, and cried piteously, 'They be a-killing me, they be a-killing me!' and many others: but time is inexorable, and the best of friends must part. Our friend stood by us till the train steamed out of the station, and with best of wishes we bade him adieu, feeling that bee-keeping engenders a freemasonry amongst the craft that only death can sever. We ran from Leamington to Reading with only once stopping, at Oxford, reaching home in good time. We felt we had spent a happy day.—W. Woodley.

BEE-KEEPERS' VOCABULARY;

OR, GLOSSARY OF TECHNICAL AND SCIENTIFIC WORDS USED IN WORKS UPON BEE-KEEPING.

Derm, Derma, or Dermis. *n.* (*Gr. derma.*)—The true skin, as distinguished from the cuticle or epidermis.

Dermal. *a.*—Pertaining to the skin; consisting of skin.

Descent. *n.* (*L. descensus*, going down.)—Birth; extraction; lineage.

Deserting colony. (fr. *L. desertus, desero*, I forsake.)—See *Absconding colony.*

Destroying system.—The old-fashioned system of destroying bees by means of sulphur fumes, with the object of taking their honey.

Deteriorate. *v. intr.* (*Fr. deteriorer; L. deterior.*)—To grow worse; to degenerate.

Developement, Development. *n.* (fr. *Fr. développer*, to unfold.)—Term applied to express the organic changes which take place in animal and vegetable bodies from their embryo state and until they arrive at maturity.

Devil's Snuff-box.—The puff-ball. (Arch.) See *Bunt.*

Dextrose. *n.* (*L. dextrorsum*, contraction for *dextroversum*, towards the right side.)—One of the constituents of grape sugar or glucose, so called from its property of turning the ray of polarisation to the right; dextro-glucose; one of the sugars into which the cane sugar of nectar is converted by a salivary secretion of the bee, before it is stored in the cells as honey, the other sugar being *levoglucose* or *levulose.*

Diaphragm. *n.* (*Gr. diaphragma*, a partition wall, *dia*, apart, and *phrasso*, I fence in.)—An extension of horizontal muscular plates, dividing the abdomen into two unequal parts, in the upper of which is situated the dorsal vessel, whilst the viscera are found in the lower division.

Diarrhœa. *n.* (*Gr. diarrhoia*, a flowing through, fr. *dia*, through, and *rheo*, I flow.)—An evacuation of very liquid fæces; a disease usually termed dysentery (*q. v.*)

Differentiation. *n.* (*L. differentia*, a difference, diversity.)—The separation or discrimination of parts or organs which in simpler forms of life are more or less united; a progress from the general to the special, by which the primitively simple parts of the living body become more and more unlike one another.

Diffuser. *n.* (*L. diffusus, diffundo*, fr. *dis* and *fundo*, I pour or spread.)—Apparatus used for producing and diffusing a spray of liquid.

Digestion. *n.* (*L. digestio.*)—The conversion of food into chyme; the process of dissolving aliment in the stomach and preparing it for circulation and nourishment.

Digestive apparatus, or system.—The organs of digestion: the chyle stomach and intestines in which food is digested.

Digestive fluid.—Gastric juice, secreted from blood by cells in the lining of the chyle stomach. Its functions are to dissolve and prepare the food for assimilation.

Digits. *n. pl.* (*L. digitus*, a finger.)—The four small joints of the tarsus, the terminal one carrying the claws and pulvillus.

Dipping plate.—A plate of metal or glass used in the same way as a dipping board (*q. v.*)

Foreign.

AUSTRALIA.

There is a glut of honey in the Sydney market, tons being in stock without any outlet for quitting unless export to England is tried. It is remarkable that so excellent a table delicacy should be discarded for family use. The *Annual Review* of California for 1888 makes the following remarks on a similar experience:—'Extracted Honey.—The output this season fell a good deal short of what was anticipated, which consequently made prices much better. The quality is also good, and the colour especially is much finer, and we have had more extra white honey this year than we have seen for a long time. The honey of California is beyond question the finest produced in the world. Another thing in its favour is that the honey shipped from California is, as a rule, pure. Where adulterations have been indulged in, it has generally been done after the honey leaves this State. There is, in fact, little or nothing that could be used here for adulterating the honey but that is worth as much as the honey itself. We notice that our suggestions in regard to using new tins and cases are being more generally adopted, and this is to the benefit of the producer. Honey which is put up in that shape will generally bring enough more to pay for the extra cost; and it looks much neater and more tasty in that shape. It is to be deplored that the consumption of pure honey throughout the country is not larger than it now is. The article is cheap enough for any one. It is a wholesome article of food, and can take the place of butter, as well as being used in various other ways on the table. Yet, notwithstanding this, it is only right to say that the sale of honey has been languishing for a number of years. Just why this is it is very difficult to tell. Pure honey is an article that ought to be found in every household in the country.—*Sydney Mail.*

FRANCE.

APICULTURE AT THE PARIS EXHIBITION.

If one were writing an account of the progress that has been made during several years past in apiculture, one would be astonished in going through the immense galleries devoted to instruments and agricultural products at the Exhibition to find so few things connected with this important adjunct of agriculture. It is true that, properly speaking, there is no apicultural exhibition, and that the appliances and the products are dispersed without any order, and cannot be appreciated as they should be. The cause, in our opinion, is, because there has been no special organization for this branch, which presented a great attraction at the Federal Exhibition at Neuchâtel in 1887. At this Exhibition all the Swiss apicultural Societies contributed to its success, and a commissioner, a specialist, presided over its organization in space set apart for the purpose.

At Paris there was nothing similar, the appliances and products are exhibited here and there without any other order than that of nationality. It seems also that the organizers of this immense Exhibition quite overlooked it, or else opined that this branch was unworthy of the interest that it claims in rural economy. One fact in support of our supposition is that in the programme of the Agricultural Congress, apiculture as a special subject was entirely omitted. Destructive insects were discussed, and we ask why the bee, the useful insect *par excellence*, had not accorded to it the place it had a right to.

From what we have just said, it must not be concluded that the appliances and products possessed no value. We saw two very practical centrifugal honey-extractors, a hive by Langstroth, one by Dadant, an English one, and one by Dietrich, as well as some straw

hives, usually known as 'Norman.' We found, moreover, here and there, several show cases, with beautiful specimens of honey and wax; but all this did not resemble an exhibition, it did not attract the attention of visitors, and appeared very poor in comparison with the Swiss Exhibitions of Zurich and Neuchâtel.

If the several instruments and products of the different countries had been collected into one section, they would have interested the public, and would have shown not only what this branch has become in the hands of intelligent agriculturists, but what it can and ought to become with new methods under the direction of experienced apiculturists.

We have mentioned above that apiculture was forgotten to be inscribed as one of the branches that should have been the subject of the deliberations of the Congress. One of the members of the Sixth Section having mentioned this regrettable oversight, was invited to present a motion upon it. He did so, and this was submitted to the general assembly of the Congress at its meeting of the 11th July, and after the President, M. Meline, had put forward its importance, and urged its advantages, it was unanimously adopted.

This resolution, expressed by the general assembly of the Congress, and transmitted to the Ministry of Agriculture, will at least have the advantage of drawing the attention of the Government to this branch, and one is induced to hope that with their assistance, apiculture will very soon become the subject of special education, and that it will become a new source of industry for the agricultural population of France, as it is of many other countries of Europe and America (*Journal de l'Agriculture.*)

Uses of Propolis in Russia.—'During my pleasant stay at your pretty villa, I spoke to you of the utilisation of propolis in the varnish of our wooden wares, which resist the dissolving power of hot water so well. I have just found a description of the process, and will communicate it to you. Propolis is purchased by hucksters, who pay five copecks—a little over two cents—and sometimes even less, for permission to scrape or plane the propolis from the walls of a hive that has lost its bees. The shavings, covered with propolis, are heated, put into a wax-press, and subjected to the treatment used in the extraction of beeswax; the propolis is then purified in hot water, to which sulphuric acid is added. About fifty per cent of propolis is thus obtained, which sells at forty cents per pound. This propolis is poured into hot linseed oil and beeswax in the following proportions:—Propolis 1, beeswax ½, oil 2. Previously, the oil should "linger," as we say, on the stove for fifteen or twenty days, that is, remain hot without boiling, to give it the property of drying. The wooden ware is dipped into the above mentioned preparation, and must remain in it for ten or fifteen minutes, after which it is cooled, and rubbed and polished with woollen rags.'—A. Zoubareff.

Bees and Colours.—While experimenting on the facility of bees remembering colours, we placed some honey on small pieces of coloured paper. A bee alighted on a yellow paper, sucked her load, and returned to her hive. While she was absent, we moved the paper. Returning, she came directly to the spot, but noticing that the paper was not there, she made several inquiring circles in the air, and then alighted upon it.—Professor A. J. Cook.

A Snail Propolised.—A snail having crept into one of M. Réaumu's hives early in the morning, after crawling about for some time, adhered, by means of its own slime, to one of the glass panes. The bees having discovered the snail, surrounded it, and formed a border of propolis round the verge of its shell, and fastened it so securely to the glass that it became immoveable.—Bevan.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 2nd page of Advertisements).*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

LATE QUEEN-CELLS.

[2311.] On examining a strong stock of Ligurians, belonging to one of our members, on the 25th inst., I found no less than nine sealed queen-cells, nearly ready to hatch. The bees covered ten frames, containing an ample supply of sealed stores, patches of brood as large as my hand on each side of three combs in various stages, but, so far as I could discover, no *eggs*, and not a single drone. During the few minutes I had for examination, I failed to see the queen, the hive being crowded with bees, and the weather cold. I opened several of the cells, and found a well-developed queen in each. Is not this an unusual occurrence so late in the season? I shall be glad to know your opinion on the subject. Nearly all the stocks I have examined to-day have abundance of stores, and more brood than I have ever seen in September. W. E. Burkitt, *Hon. Sec. and Expert W.B.K.A., Buttermere Rectory, Hungerford.*

P.S.—Cottagers about here have not done so well as usual with their old skeps; the losses last winter were very heavy, and the survivors too weak from want of food to do much. In spring swarms were scarce. Early ones did well from sainfoin, but late ones did little or nothing.

[In districts where ivy and Michaelmas daisies abound, the bees are getting sufficient honey and pollen to recommence brood-rearing to a limited extent. We opened a hive on the 27th ult., and were astonished to find one comb nearly filled with uncapped freshly-gathered honey, and as a consequence many cells containing eggs and larvæ. Thus the fact of your finding brood in most hives examined is explained. At this season, autumn, colonies, if overhauled, will 'ball' the queen to an extent little thought of by the examiner, and in the majority of such cases kill her. We are not far wrong in estimating the number of queens so 'balled' as at least twenty-five per cent in the case of novices meddling with their bees at this season if there has been any robbing, or attempt at robbing, during the day the examination takes place. Where has there not been such at this season? If a queen is so 'balled' and killed, and there are eggs or larvæ in the hive, the bees will at once commence queen-rearing, hence the fact of your finding queen-cells is explained. Again, at this season bees will, in exceptional cases, 'ball' their queen when they are being attacked by robbers, the same having gained an entrance, but this rarely or ever occurs with a colony such as you describe. When a queen is thus killed, it is of no unfrequent occurrence for the attacked and now queenless bees to join the robbers, and assist in removing their own stores to the hive of the robbers if they have no larvæ or eggs to raise another queen from.—Ed.]

POINTS IN JUDGING.

[2312.] This subject has again come to the front, and as an exhibitor, and occasionally as judge, I should be very glad to see a definite scale of marks fixed by the B. B. K. A. in the same way that a scale of points is fixed and recognised by poultry and pigeon societies, &c. If all those who agree that a fixed standard is wanted would write to your paper, the committee of the B. B. K. A. would doubtless be so impressed with the strength of the agitation that before another season the matter would be arranged. I hesitate very much to suggest a scale of marks, as I think a committee of all the judges recognised by the B. B. K. A. is the proper source from which such should come, but at the same time I should like to give my ideas on extracted honey. In judging all honey it is essential to remember that we are judging an article intended for sale. If an article is unattractive *in appearance* very few would buy, however good they might find the quality; on the other hand, if attractive to the eye, but not nice to the taste, no repeat orders would come. I should therefore classify the points as follows:—

A. *Quality.*	
1. Flavour	40
2. Aroma...	10
B. *Appearance.*	
3. Consistency	15
4. Colour	10
5. Clearness and freedom from wax and dust...	10
6. Neatness of get-up	10
7. Uniformity	5
Total	100

EDWARD J. GIBBINS, *Neath, Glamorgan, Sept. 30th.*

POINTS OF EXCELLENCE IN JUDGING HONEY.

[2313.] I am very glad that so eminent and experienced a bee-keeper as Mr. Lett has given his opinion on the standard for judging honey, suggested by certain members of the Irish Bee-keepers' Association (*not* by the Association), though I regret that he 'can scarcely regard it as seriously intended.' The ambiguity of the expression 'get-up' has probably had much to do with the most uncomplimentary and wholly erroneous suggestion implied in this remark. We have found by our experience in selling honey for our members that general attractiveness of appearance is of extreme importance in making the commodity marketable. In the case of sections this may be seriously injured in such ways as the following:—The wood may be dirty, discoloured, or sticky with honey; a label may be clumsily placed on it; the comb may be indented or bruised with the fingers, and the like.

In the case of bottles the covering may be dirty, untidy, or saturated with honey; the label may be all awry; the glass may be sticky, and in that condition may have (as I have myself seen) bits of straw sticking to it, and so on. These may seem small points, but in the market they are of great consequence *as a matter of fact*. 'Dressing of the sections with ornaments of various kinds' is not included in 'get-up,' but neatness in labelling them with the number of the exhibit for identification at a show would come under this head. I think personally that in any standard we may adopt we must give a good many marks for 'get-up' in this sense (I have used a different expression for it below), and must therefore give fewer to some other points than Mr. Lett does. When allowance is made for this, there is not so very much difference in other respects between the two standards, but some still remains. It may be of interest and may lead to further discussion, which is greatly needed, if I append as exact a comparison as I am able to make between the two systems.

As Mr. Lett's total marks are 20 and the proposed standard's are 100, I have divided all the marks of the latter by 5 to bring it to the same scale. In sections Mr. Lett's 'Completeness and finish' apparently answers to the proposed standard's 'Completeness of sections,' &c., plus its 'Sealing (colour, completeness, and clearness),' so far as 'completeness' of sealing is concerned; whereas I suppose the 'colour' and 'clearness' of sealing would come under Mr. Lett's 'Colour of honey and comb,' &c. Therefore from the 6 marks assigned (on the reduced scale) by the proposed standard to 'Completeness of sections,' &c., plus 'sealing,' I take away 2 and add them to the one allotted to 'Colour of honey.' Thus adjusted, the two standards are as follows:—

Sections—Mr. Lett.		Proposed Standard.
Completeness and finish	8	4
Colour of honey & comb, &c.	5	3
Uniformity	2	1
Flavour and aroma	3	5
Dressing sections with ornaments	2	None
Attractive appearance in ways not previously mentioned	None	5
Density of honey	None	2
	20	20

Bottles—Mr. Lett.		Proposed Standard.
Consistency and density	4	Density 3
Colour and brilliancy	4	4
Flavour	5	5
Aroma	3	1
Uniformity	2	2
Attractive appearance in ways not previously mentioned*	2	5
	20	20

HENRY CHENEVIX, *Hon. Sec., I. B. K. A.*

TAKING BEES TO THE MOORS.

[2314.] In answer to the appeal for information from Yorkshire or Scotch bee-keepers who are accustomed to take bees to the moors, as I have taken my hives there off and on for forty years, and have tried both skeps and bar-frame hives, I will give you my experience.

Swarms seldom leave the hive if they have sufficient time allowed to settle after leaving the old hive, but they do not want leaving longer than is necessary, and do best in an empty hive, with only foundation in it; a swarm treated in this way will generally do far more than an old stock, with all its advantages; swarms seldom do so well if too much helped. The time for taking bees to the moors varies according to the season; this year has been an exceptionally early one. The ling (as we call it) was in full flower much earlier this year than usual, the average time being about the 6th of August in the Great Ayton district, and lasts five weeks or so. If the frost is intense enough to nip the flower, the heather, of course, is finished earlier. Wet weather washes most of the honey out of the flower; sunshine is what both we

* In the case of *bottles* there is not so much difference between what was intended and what Mr. Lett probably understands by 'get-up;' but I do not think much importance was meant to be given to the artistic character of the label, provided it is neatly put on and not positively ugly.

and the bees like, as the nectar is both more plentiful and finer than in wet weather. In this neighbourhood we always expect more honey from the heather than from clover and blossom, and look anxiously forward to this time for our profit. I may say this season has hardly been an average one with us, owing to the dull and wet weather. As regards the prodigious quantity of honey gathered by old skeppists, they never get anything like so much as we do with our modern bar-frame hives; and what we used to get formerly was not so good in quality as in a large straw hive; the heat of the hive spoilt the colour of a great deal of the honey, and some was spoilt by having brood mixed with it.—JOHN DIXON, *Great Ayton, North East Yorkshire, Sept. 21st.*

TWO HOURS AT THE MOORS.

[2315.] Saturday, September 7th, being a beautiful day, we determined to drive to the moors to have a look at the bees, so we organized a party of lady friends and children, who were delighted with the prospect of the outing. After a little stratagem in packing our human freight, a start was made, and twenty minutes afterwards we were in the open country, driving along the banks of the Ouse, from which we were able to see the improvements being made to the river. Following the course of the river for a little over a mile, we arrived at the village of Swinefleet, but there being nothing very interesting at that place, we did not stay, so, taking a turn to the right, we left the village and river behind, and soon were in sight of Messrs. B. & Co.'s Peat-moss Litter Works. The Lincolnshire Wolds were plainly visible to us on our left, the sun shining brightly upon them, whilst in the foreground were fields of the various grain and root crops. Harvest operations were being pushed forward as much as possible, and the rustle of the sheaves as they were being forked on the waggons, and the 'gee-whoa' of the lads with the horses, were the only sounds to be heard, if we might except the rattle of wagonette, and the twattle of the tongues of its occupants. Having arrived at the above-mentioned peat works, on the edge of the purple-clad moor, we secured our steed, and were soon among the bees, taking off shallow frames, beautifully filled with the aromatic honey from the heather. Sections had been badly taken to we found, but shallow frames had been well worked in, and had it not been for the unfavourable weather lately experienced we should have had nearly double the quantity to take; but we must not complain, it might have been a great deal worse. Whilst we were busy with the bees, our friends were enjoying themselves, roving about and making bouquets of heather and gale.

Our work over, a ride on the tramway was proposed and agreed to, and a car was quickly filled (not such cars as run in our large towns, but merely a truck on four wheels, on which the peat, after being dried, is brought to the works to be manufactured into litter). We commenced our ride, or rather *we* commenced to push the truck, until we got a bit of 'way' on, and then, jumping on, rode until it almost stopped. In this way we went nearly a mile on the moors. We then had a short rest and a look around us, and the sight of the sea of bloom would no doubt make some of your readers envious. As far as the eye could see there was scarcely anything but heather (*Erica tetralix* and *Calluna vulgaris*). Our watches reminded us that it was time to be going back, so we commenced our return journey to the works, and when a short distance from the terminus it was amusing to see the scramble of two passengers in front who thought they were to be made use of as buffers to reduce the force of a collision with another truck on the lines; but carefully noting our distance from the obstruction, we jumped off, and brought our car to a stop several yards off. We next took our places in the wagonette, and commenced our journey home, where we arrived about half-past eight, having spent a most enjoyable afternoon off.—A. W.

BEE-STINGS.

[2316.] In the *B.B.J.* for September 5th (No. 2284), appears a descriptive account, and its effects, of a bee-sting upon a bee-keeper. Now, as I think such cases are only very rare, or at least I hope so, for if they were the rule instead of the exception, no doubt it would be a great drawback to bee-keeping. But as I happen to have had a similar, or even worse, attack from a sting, I think it only right to state it for the benefit (if any) to others.

One day, during the summer of 1887, I was walking up my garden, past the end of a row of bee-hives, no veil on, as I was not handling the bees at the time, when suddenly a bee in coming for the hive came against the back of my head. I did not fight it, but no doubt it became entangled in the hair, and eventually stung me. I came straight into the house, got my wife to find the sting and take it out, and at once to apply the same antidote (ammonia) freely, but in a very few minutes I began to feel a strange sensation over me, which I cannot describe, my face and head swelling very much, my lips twice their usual thickness, and my whole body striking out into a rash, and altogether I felt in a semi-paralysed state, which greatly alarmed my wife and son, who happened to be there at the time. But my own worst feeling was a dread of lockjaw, as it seemed with the greatest difficulty that I could keep them moving to avoid it. The first thing that my wife did was to get me a glass of hot whisky and water, which I managed with some trouble to get swallowed. Then, as quickly as possible, got my clothes taken off, and sponged me over with hot water; then, with a coarse bath towel, they both rubbed me freely, till it seemed slowly to bring back the circulation, and I also walked about as fast as I could, but still the effects did not leave entirely till next day.

But as for such a case to make you sting-proof in the future, I think such will not be the case, for I may add that in packing up my bees for the moors that season, I got stung on my thumb-end, which had a slight resemblance to my former attack, but lasted only about two hours. From that time I have been very careful to have a bee-dress over my face and head when doing my manipulations amongst the bees; but I always work without gloves, and have been stung many times on my hands this season, but have never felt any ill effects from them. The reason I did not send this strange phenomenon to the *Journal* at the time was, being a sufferer from rheumatism myself, I thought it would be no doubt caused by the impure state of the blood, which is the cause of that complaint; but when I hear of a similar case not many miles distant, I think it might be a warning to others to be careful if such cases are made known.—J. PARKIN, *Ovington, North Yorkshire.*

CURE FOR BEE-STINGS.

[2317.] Having read the effects of bee-stings in this week's *Journal*, on p. 408 (2298, 2299, 2300), who all advocate spirits as a cure (or to put a little nerve into them), I for one certainly go in against that sort of thing, as I am a total abstainer, and hope a lot more of my friends who keep bees are the same, and do not want a little spirits to give them a nerve to go to their bees. To such of my temperance friends who do keep bees let me say, You can get on well without the stuff, weak or strong.

I was driving a lot of bees from a straw skep, when by some means unaccountable they attacked me in such a manner I can hardly describe; but I stuck to them (and

they stuck to me), and got them out, but I was stung very badly all round my throat, and I came out in a rash all over, and my throat swelled till I thought I should be choked. Now, I used carbonate of soda and water where I had been stung, and got the stings out, and drank plenty of cold water to give me a little nerve, and I soon began to get better, and since then I have not swollen hardly anything, but before that I used to swell very badly. I may say I have kept bees for ten years, and I have nineteen stocks at the present time.—ALFRED HUMPHRIS, *Thame Park, Thame, Oxon, Sept. 21st.*

STANDARD GLASS JAR.

[2318.] The suggestion of a 'Shropshire Bee-keeper' (No. 2285, p. 389), that some jar should be adopted as a standard honey jar, is, I think, a very good one, and therefore deserving of serious consideration; but I do not think he has succeeded in showing that the form of jar he proposes is the most suitable one for the purpose. His first objection to the screw-cap is that it leaks. Does not the tie-over leak, too? and is not the parchment more readily broken or torn? In fact, to make the tie-over quite secure it should first be *corked*, and then tied. This means an additional expense of about 4*s.* 6*d.* per gross, and would leave very little difference in the price of the tie-over and screw-cap. Then look at the great amount of trouble in bottling the former jar. I find I can more readily sell screw-caps than tie-over, unless the latter are corked, and the wise seller will always provide his customers with that which they most like. One certainly feels sorry for the exhibitor who, while having a stock of tie-overs buys screw-caps for show purposes, and then does not win. Perhaps the judge *preferred tie-overs, and that was why he lost*; or the judge may have judged the *honey*, not the *jars*. The difficulty of opening the jar to judge of flavour need not, I think, enter into the question, as it is more imaginary than real. Personally, I think it advisable, in putting up honey, to cater for the public: even if one gets a *little less* for the honey it is better than *not selling* it, and by selling screw-capped jars at 1*s.* each the bee-keeper is getting 10*d.* per lb. for his honey, which I think is a fair price. In conclusion, I do not think it possible to lay down a hard-and-fast line as to what jar the public shall buy; but it would certainly be a great boon if the British Bee-keepers' Association would fix a standard bottle for show purposes, and at the same time fix a standard for judging the *honey* which is shown in it.—ANOTHER SHROPSHIRE BEE-KEEPER.

BOTTLES.

[2319.] I was very pleased to see in last week's *Journal* 2285, an article on 'Bottles.' I am quite the same opinion as 'A Shropshire Bee-keeper' that we should have a standard size bottle. I would suggest one of the same shape as the screw top bottle, with corks to fit; it should also be of a proper size to hold a pound of honey. This season I have had several different shape bottles, each supposed to hold a pound of honey; some of them hold over the pound and some under. Some 2-lb. bottles I had would only hold about 1¾ lb., which is very annoying. —A WOTTON-UNDER-EDGE BEE-KEEPER.

BEE-KEEPING IN 1889 ON THE CAMEL.

[2320.] Now that this year's season has drawn to a close, perhaps some of your Cornish readers may be glad to know the experience of one on the north coast. I started the season after uniting queenless and weak stock with a score, all hybrids. Most of them were late in starting to breed, although stimulation and other usual methods were tried to induce an early increase of bees. May proving a lovely month, brought them up to supering earlier than I expected, so that crates (fitted in my usual way, with small triangular pieces of foundation) went on early in June, just as the honey-flow commenced. The swarming fever now began, which kept me fully employed for a fortnight. As soon as swarms pitched, I usually set to work to cut out queen-cells, returning the deserters; but, as in many cases, they at once raised new queen-cells and swarmed out again. I grew tired, and resorted to an easier method, that of allowing the swarm to remain out, and cutting out all queens 'except one' in old stock. My numbers have now increased to thirty-two, some, where two or three had gone together, tiered three deep. I had taken off a good many sections, and turned my whole attention to the gathering of surplus. Hives which contained fifteen frames had not swarmed, and these of course gave best results, one giving 105 sections and about 30 lbs. in frames, besides collecting and storing below enough for winter use. A friend had sent me a section fitted perfectly with full sized pieces of foundation, so I put it in the middle of crate (being the best place), and expected on again removing crate to find a beautifully finished section. Great was my disappointment, however, to find all complete except the *model*, which was not even drawn out. This proves thoroughly that bees require pop-holes to work conveniently and well. Should like to see the experience of others in reference to the above-mentioned section.

The flow ceased in the last week of July, so since then I have been busily taking off sections, bell-glasses, &c., and extracting combs. It proves to be the best year since 1880. The sections average a good pound, and the quality of extracted honey is exceptionally good. In conclusion I owe you and all your readers an apology for giving you such a long yarn. We must now get our stocks ready for winter, and thus prepare for another good time.—PETER TONKIN, *Padstow, Cornwall.*

BEE-PASTURAGE.

[2321.] I think enough value is not placed upon 'borage' as a bee-flower. I have grown it for the last three years, and I find it a most useful and valuable plant for the bees. From June till the frost cuts it off it is visited by many of the bees. Hundreds visit the flowers in the wet and cold weather, when they cannot go into the fields. I find it very useful in September by inducing the queen to lay eggs later in the season.

In 1888 I saved all my stocks, and, in my opinion, it is greatly due to the borage in my garden. It is easily cultivated. By cutting off the stems as they come to seed new bloom will be coming, and the flowers blooming in June will bloom till the frost cuts them off.—R. FRENCH, *Royal Spa Apiary, Leamington.*

SINGULAR DISAPPEARANCE OF A QUEEN AND OTHER MATTERS CONNECTED THEREWITH.

[2322.] I avail myself of the opportunity, afforded by the columns of the *Bee Journal*, of bringing before the notice of your readers an incident in my apiarian experience which, to me, has proved a sorry stumbling-block.

About the middle of July I transported two hives to the moors, some three miles from Scarborough. Here the bees prospered, and increased both in numbers and riches. On Saturday afternoon, the 31st August, having provided myself with two carbolic cloths, I journeyed to the moors for the purpose of removing a number of completed sections.

Having first gently prised the crate from the frames, I drew it slowly off, at the same time drawing cloth

No. 2 over the frames. I stood the crate on a chair hard by, and on looking at the hive was greatly surprised to see hundreds of bees rushing wildly out and gathering in bunches suspended from the alighting-board. I immediately came to the conclusion that the fumes of the carbolic acid were driving the bees out; so, hastily removing the cloth, I replaced the ordinary quilt, naturally anticipating that the bees would speedily return. In this I was mistaken, for, on leaving the hives an hour afterwards, the bunches hung as large as ever.

On the following evening the cottager (in whose garden the hives stood) told me that 'he thought the bees were going to swarm, as thousands of 'em were hanging about outside the hive all the forenoon.'

A fortnight later (Sept. 14th) I again visited the hives, fully expecting to find the sections that I had returned on my former visit completed and sealed over. I removed the quilt, and received my first shock; the sections were almost devoid of bees, and, what was perhaps more astonishing, contained but little honey. I lifted off the crate, and received my second shock; the frames were very sparsely populated, and on taking out the centre one found it literally covered on both sides with drones. The truth gradually dawned upon my inexperienced mind—*the queen was gone!*

Sorrowfully I removed frame after frame, only to find the presence of drones and the absence of honey. This was, indeed, a severe blow, for this hive had yielded excellent results, and but a fortnight before was filled to overflowing with honey and bees.

The only explanation I can offer is this:—On the 31st August the queen left the hive, frightened by the fumes of the carbolic acid, and, having failed to find her way back, on the following morning, when the sun came out, flew away, followed by a large contingent of the colony. She has formed a new and natural home in some bank or tree-trunk, the deserted hive being devastated to supply the necessary storage. These, understand, are simply my conjectures.

I will mention a few facts which may possibly help to a correct solution of the problem:—

1. The nearest apiary is four miles distant.
2. There are none of the usual signs of robbing.
3. The carbolic acid used was the common brown, disinfecting acid; two ounces of which were mixed with a quart of water, and, through force of circumstances, allowed to stand in an open bowl for a week: clearly proving, I think, that the strength of the solution was not, under ordinary circumstances, too great.

It is possible that among your numerous readers there are those who have had a similar if not an identical experience. I need hardly say that I should deem it exceedingly kind if they would help me to an explanation of the difficulty. Especially would I ask their opinion as to the futility or otherwise of following a bee from this hive for the purpose of ascertaining the position of the new home, if such an idea commends itself to their reason, and the ultimate capture and return of the runaway queen.

My inexperience (and also, I hope, enthusiasm in the cause) must be my only apology for troubling you at such length.—Alfred C. Williams, 148 *Victoria Road, Scarborough.*

SECTION CRATES.

[2323.] In a recent issue 'Apiarist' complains of section crates not made being large enough to cover the tops of frames. This has always seemed to me a great drawback to the use of the $4\frac{1}{4} \times 4\frac{1}{4}$ sections. By using the $4\frac{1}{2} \times 4$ sections, the crate is just the right size to cover over the metal ends, and shut all in tight. Another advantage—six of these sections will just fill a standard frame. These sections I find sell quite as well as the $4\frac{1}{4}$ in. ones. By many they are preferred, as being better looking, and they are certainly more convenient in many ways. Why there should be so much prejudice against them I am at a loss to know. I am told they would not stand a chance at a show against the $4\frac{1}{4}$ in. ones; but, in spite of that, I find they possess so many advantages, that I have given up entirely the use of $4\frac{1}{4}$ in. ones, and in future shall use none but the $4\frac{1}{2} \times 4$ sections. 'Apiarist' should give them a trial.—W. H. H., *East Kent.*

EXPERIENCES.

[2324.] Would the experiences of a young bee-keeper be of any interest to your readers? I had often had a desire to keep bees on the bar-frame system, but could not afford to get a proper hive. In *Amateur Work* for March, 1887, there was a very clear description of how to make a bar-frame hive. It took my fancy at once, and I made one exactly as described, *minus* the hinges. Since then I have gradually made, with help from the village carpenter, six more the same size and on the same lines. One I have made with glass sides and shutters. A friend, about two miles distant, promised me a swarm, so I got foundation and fitted up the frames. Having carefully levelled the stand, putting a piece of tile under each foot, I placed the hive in position in the garden, facing east, and waited patiently for the swarm. My friend brought the swarm on the evening of June 17th, and as I happened to be from home he kindly hived it for me. On June 29th I had a small cast sent, and another on July 11th. At the end of August I wrote to a well-known expert, and described the condition of my hives, and he advised me to unite all three together for the winter. I got an old bee-keeper in the village to help me, and one night we united the two casts together. We thought these two made a nice colony, and we did not put the others to them. In the spring this nice colony gradually dwindled away. The other hive during the next year never had more bees than could cover six frames. On the 21st of September, 1888, I united this with another, which had been made up of two casts. This hive sent out a swarm of 4 lbs. on June 13th of this year, a cast of $3\frac{1}{2}$ lbs. on June 25th, and another, same size, on June 27th, and all have done well.

Before the winter of 1887 another friend sent me an established colony in a straw skep. On May 21st of this year we placed this skep under a bar-frame hive containing eleven frames, with full sheets of foundation, having cut holes 6 in. by 4 in. in the floor-board. This was done that the bees might *transfer themselves* into the bar-frame hive, according to the suggestion in the *B.B.J.* a week or so before—February 21st I believe it was. I put the feeding bottle on, and allowed them *one* hole. They soon drew out the foundation, and established themselves in the bar-frame hive, and afterwards worked out twenty-one sections, and filled them with beautiful honey. This hive sent out a 5-lb. swarm on the 22nd of June, and a cast of about 4 lbs. on July 3rd. This last I joined to a 1-lb. cast, and put into my hive with glass sides on nine sheets of foundation and two half sheets. All the foundation was worked out, and the frames filled with comb in two weeks, but they never entered the sections. These I removed last week.

Now for our experiences of bees *transferring themselves.* On Monday night, August 12th, my bee-keeper friend and I set to work to remove the skep from under the bar-frame hive. After having smoked them, we removed the supports and wedges from the skep, but it was glued quite tight to the floor. I ran into the house for a big screw-driver, and with it I prised off the skep. My assistant received the skep, and said it would weigh more than a stone. I tried in vain to put the wood, which had been carefully prepared with screw-holes, into the opening in the floor, but only got stung all over the hand. What was to be done? It was getting dark, so we put an empty skep under the hive, and

wedged it up, and the skep we had taken away, having driven most of the bees out of it, we put into an empty hive, closed the entrance, corked up all the ventilation holes except one, from which we removed the perforated zinc, and tacked over it a bee-trap, and left it till Tuesday night. During Monday night I came to the conclusion that the bees had worked comb from the bottom of the frames through the hole, so I determined to transfer the frames into another hive. This we did. The frames contained a nice lot of brood, but the two front frames were solid slabs of honey. As I had anticipated, one of the frames had comb containing brood worked under the bottom bar of the frame. I saw nothing for it but to cut this clean away, which I did with an uncapping knife, which had been dipped in hot water. I never heard anything in bee-life like the howl they made as soon as these two pieces of comb were cut off. Having put the hive on the old station we turned to the skep. From this we took the comb with difficulty, as no less than four laths had been thrust through the hive. Great was our disappointment and vexation to find the comb was nearly all filled with *brood*. Being seven miles from a railway station, we are out of reach of peripatetic experts, and have to get our knowledge from various experiences. Whether in our bungling we have lost the queen I do not know yet, but hope she was in the parlour when we removed the skep, for she is evidently a good one. In a few days, when they have settled down, I think of putting on the feeding bottle, opening one, or perhaps two, holes. I am supposing that the queen is all safe. Would the writer whose article is referred to above kindly say *when* a skep should be inverted on his plan and *when* it should be removed? —Anxious to Learn.

MY LAST EXPERIENCE.

[2325.] After staying in Richmond for three and a half years, I have now returned to Kingston for a permanency. For near the last twelve months I have had but one hive of bees, but having bought two swarms in skeps, and divided my one strong stock of Ligurians, I am the happy possessor of four fairly strong lots of bees. I have also two small stocks in nuclei, one of which I fear has no queen, unless there were two queen-cells, as I found a dead queen on the floor-board two or three days after setting them on their stand; possibly I had overlooked one. I had an enjoyable (?) set out over one swarm that I fetched from Richmond. Feeling it rather heavy I carried it very carefully upside down, being given to understand it was a large swarm. So, doubtless, it was, for when I lifted the hive gently on one side in the morning, thinking of shaking the bees among the frames of a modern hive, the combs, eight or nine inches deep, were all detached and leaning partly doubled up against the side of the hive, with hundreds of my little pets smashed. Fortunately, the queen had escaped, so I tied the slabs of comb into frames as well as I could, shaking the bees amongst them and covering them up. Moral: Don't buy a swarm of bees that have been hived a fortnight and convey them over four miles if you can possibly help it, unless you can secure the combs well before starting.

As to the *B. B. J.*, all I can say is, that, if any bee-keeper fails in keeping bees as a profitable investment, weather, &c., being favourable (to say nothing of the exquisite pleasure of attending to them, and giving a taste of pure honey to your friends), it is most certainly not the fault of the Committee, or 'Mr. U. H.' May it long continue to be, what it long has been, the *queen* of *bee-keeping journals*. And now that it is only a penny a-week, surely no one can say they can't afford it; for my own part I prize it very highly, and push the sale all I can.

With regard to the swarm from Richmond, I was under the impression that it was newly hived, as I had asked to be informed at once when one came out, and it really had been hived ten or twelve days.—H. Crawley, *9 Canbury Park Road, Kingston, S.W.*

EXPERIENCES OF A BEGINNER.

[2326.] Living, as I do, so near the City of London, I thought it might interest some of your readers to know some of my experiences with the bees but as I am only a beginner, and this is my first letter on the subject, I hope you will make every allowance for my shortcomings. My first start in bee-keeping was through going to the Agricultural Show last year at Nottingham, where I was very much interested in the bee-tent; and as I saw the bees handled with impunity (by, I think, Mr. Howard, of Peterborough), I made up my mind to go in for bee-keeping myself. I therefore went down to Messrs. Abbott at Southall, and ordered two swarms of English and one stock of Ligurians, which were hived on the 28th of July; and the first week in August I had a stock of Carniolans from Edey & Sons, St. Neot's, and a stock of English from a friend at Dunmow. That constituted my stock at the starting of this spring (five lots), and with so small an apiary I think I have had some very good results, as I have taken over 2 cwt. of honey, besides taking fifty-nine well-sealed sections from one of my strongest lots (English): the two other hives that I put sections on (Carniolans and Ligurians) I had to extract, as none of them were sealed up, as I thought, good enough to sell. I have still plenty of honey in the hives to take if I should require it.

I had a swarm from the Ligurians, which came out very strongly, and settled on the top branch of my neighbour's lime-tree, but I obtained a ladder and took them after a good deal of trouble. The Carniolans also came out, but after flying about in thousands, and stopping the traffic in the side road for half-an-hour, on the Sunday morning they returned to their hive. I then made a swarm from them the next day.

I have had two lots of driven bees of 7 lbs. each from C. Whiting, of Hendon, the latter end of last August, and they are doing well, getting in plenty of pollen, &c., this making my present stock nine hives.

In addition to the bees I go in for keeping their enemies, as I have an observatory hive of wasps, which Mr. Abbott, jun., and myself captured on my last visit to Southall. The wasps, I find, in no way interfere with the bees — not one ever trying to enter the hives.

But I am afraid I am now encroaching too much on your valuable space, so I will defer my particulars of the wasps until some future occasion.—Edward Dance, *Downs Hotel, Clapton, N.E., Sept. 21st.*

MY EXPERIENCE.

[2327.] In the spring of 1888 I bought two hives of bees. During the summer I bought of Simmins a Syrian queen mated with a Carniolan drone, and a pure Carniolan queen, thus increasing the number of stocks to four.

They all wintered well, especially the foreign stocks, though the losses around here have been very heavy, some bee-keepers losing all their stocks in the early part of the present season. I attempted to transfer the Syro-Carniolans from standard to Simmins' large frame, 14×14. The queen being a splendid layer, the hive was soon crammed with bees. The next operation was to remove three standard frames, and insert next entrance three large frames with comb foundation. The idea of such monster frames seemed something the bee-mind

could not understand, for at first they positively refused to have anything to do with them. But I was determined that have them they should, and at last their obstinacy was overcome, and they began to build them out. Of course I congratulated myself on the victory, but my triumph was very short-lived, for to my astonishment one fine morning out came a large swarm, and without stopping to say good-bye, away went my beautiful Syrian queen, never to be seen or heard of more.

In a few minutes I opened hive, and found about a dozen queen-cells, and also, though the workers had taken to the large frames, the queen had refused to do so. I cut out, as I fancied, all the queen-cells except one or two, but must have left more, for in course of ten days or so out came another swarm. Now, sir, I was determined I would not be beaten by those bees, so took out most of remaining standard frames, containing one queen-cell (this queen is proving quite worthless, in fact the hive is weaker than a Carniolan whose queen began to lay on August 21st), and made up another hive, and then filled up the stock with large frames. Next I shook the swarm in front of hive, and let them run in. Now, as soon as the standard frames were removed, they took to the large ones, and built them out directly. The queen is proving a capital layer, and am waiting to see if they winter better than on standard frames. So far as my experience goes, the Carniolans have proved themselves most decidedly the best honey-gatherers. I have increased the number of stocks from four at commencement of present season to nine. Later on I conducted an experiment in feeding-up run honey into sections, but space forbids my giving it now.—H. Brown, *Weston, Stafford, September 24th.*

INCREASE.

[2328.] With us, in this locality, it is a better year so far for increase than for honey, and perhaps it may be of interest to some to know of how I do it. A season where there is a light yield of honey, yet enough to keep up brood-rearing in good shape, gives more time for the bee-keeper to do other work besides that of taking care of the honey.

I place my new hive just where I want it, with a brood-board resting against the entrance. I then go to my strong stocks and take from each one well-filled frame of brood in all stages, till I have from three to five frames. As I take each one out, I look it carefully over to see that I have not got the queen, then shake the bees down on the brood-board in front of the new hive, and place the brood in the hive, doing this with each frame. When I have enough combs of brood to suit, if I think there are not enough bees to take care of it, I shake down more bees till I get enough. The bees that have flown, some will rise up and go back to the stock they were taken from. I now have a good new stock, but without a queen. They will use some of the brood to raise one, but I prefer to have young queens nearly ready to hatch to give them as soon as they know they are queenless, either raised in strong nuclei, or from a full stock of pure Italians, whose queen has been removed for the purpose. Queens hatch in sixteen days from the egg, but many times are produced in ten or eleven days, so it is best not to wait too long, and depend on using the lot of cells, as one is apt to hatch and destroy the rest. When the young queens have begun to lay, empty combs, or frames with foundation, either full sheets or starters, can be put in to fill up the balance of the hive. New frames of comb or foundation should be given the old stock when one of brood is taken away. Of all the methods of artificial increase that I have ever practised, I prefer this. It does not weaken any stock to any appreciable degree, and if one has plenty of empty combs, and the honey-flow continues fair, it is a little astonishing how fast the apiary can be enlarged. Yet we should always be cautious to increase to no greater amount than can get well prepared for winter. A good stock, with a prolific queen, and a fair honey-flow, can spare a frame of brood and bees once a-week. —Will. M. Kellogg, *Oneida, Ills.* (*Bee-keepers' Guide*).

BUMPING versus DRIVING, INTRODUCING QUEENS, &c.

[2329.] I have just returned from a fortnight's stay in Suffolk, and have visited several bee-keepers there, mostly of the straw-skep persuasion. A good season has been experienced in that county, and all the honey I saw was of splendid colour and quality. I 'took up' several skeps of condemned bees, and have made up my mind to in future discard driving in favour of the bumping process, it being so much more expeditious, and moreover the queen can be found without any trouble by taking out the middle combs first, and picking her out. The clean manner in which the honey is taken from the skeps by this mode and handed over I find to be much appreciated, as the combs are entirely free from bees and breakages. They are placed in a pan as fast as the bees are brushed off them with a single feather, and covered with a cloth to prevent robbing.

I paid a visit one day before leaving to a tree from which I extracted 50 lbs. of honey two years ago, and, profiting by past experience, laid plans to avoid the many stings that were received on that occasion. I put a little tobacco in the smoker, and gave them a good dosing with it at starting, and did not receive a sting as a penalty for robbing them of 40 lbs. more of splendid honey.

In regard to introducing queens successfully it seems to me that the easiest and simplest way is to use a tubular cage as described in Root's *A B C*. This can be made at home, by cutting a piece of perforated zinc or wire cloth 3 × 4 inches, and rolling it lengthwise to make a tube $\frac{3}{4}$ inch in diameter. An inch of one end is filled with 'Good's' candy, and, after the queen is inserted, a cork is placed in the other. It is then pressed down between the combs. I have tried this plan several times now, and have not had one failure with it, whereas I have lost several valuable queens by other methods, notably by Simmins' direct introduction system, although faithfully following his directions.—W. J. Sheppard, *Derby Road, Woodford.*

THE MORALITY OF THE BEE-TENT.

[2330.] Mr. Lett (2260) has been at the pains of giving me an undeserved castigation, that is, so far as the former portion of my letter is concerned. I cannot understand where he discovered that I 'insinuated that the lecturer got badly stung in the Glamorganshire show-yard.' There is nothing in the letter, as far as I can see, that can be construed into anything of the sort. I did not question the truth of the lecturer's assertions as to the harmlessness of bees *in the bee-tent*. What I did was to deny the truth of his statement that bees could be handled elsewhere with the same impunity as they were handled there and then. I am still of the same opinion, notwithstanding the lecturer's and Mr. Lett's statement to the contrary. That it is easier to drive a strong stock than a weak one I will not deny. Undoubtedly the former will run up more quickly than the latter. But to say that 'it is easier and *safer* to drive a stock at home, and in its full strength, than to drive a stock depleted by the losses incidental to a show-yard,' is to say that which is not exact. I don't wish to insinuate that Mr. Lett states that which he knows to be untrue, because Irish bees may be less irascible than their relatives this side of the Channel. A few

manipulations of Welsh bees would, I think, considerably modify his views as to the confiding innocence of bees in general.

No, I do not wish to put a stop to the spread of bee-keeping, as Mr. Lett says, but I do certainly doubt the wisdom of coddling an industry that is no longer in need of coddling. The spread of bee-keeping might now very well be left to the working of the economic laws of supply and demand. I confess that I am not unselfish in the matter, and that I would be better pleased were there fewer competitors springing up around me. But where is the unselfish man who has a living to make? Not your humble servant, nor yet the dealer in appliances, who, as experts, enlarge on the profits and pleasures of bee-keeping. Gentlemen who enjoy a sure income, uninfluenced by the vagaries of bees or weather, can well afford to indulge in a little philanthropy. They feel better for it. We, however, whose incomes are not sure, cannot permit ourselves the luxury of a philanthropic thought, and certainly do not like to see people taking unnecessary pains to make the battle for life harder than it is.

Before concluding, I wish to assure Mr. Lett that my former letter was not the outcome of the ill-humour of a disappointed exhibitor. I was not an exhibitor.

With the Editor's permission, I will, in a future number, give a sketch of what a bee-tent lecture should be.—East Glamorgan.

CHEAP HONEY.

[2331.] In your issue of September 19th I note a letter *re* price of honey offered at *3d.* per lb. extracted, *4d.* each for sections. To a great extent bee-keepers are bringing down the price themselves. In my journey through the north of England recently I have seen many samples of honey of a first-rate quality being sold to grocers for far less than the British and Irish Honey Company would give, and to people for whom we have never sold a section for less than 12*s.* per dozen, and extracted 10*s.* per dozen bottles. In my opinion the disposal of English honey should be left to one body in order to keep up a proper standard price.—Manager.

A SWARM OF BEES WORTH HIVING.

B patient, **B** prayerful, **B** modest, **B** mild;
B wise as a Solon, **B** meek as a child:
B studious, **B** thoughtful, **B** loving, **B** kind;
B sure to make matter subservient to mind.
B cautious, **B** prudent, **B** trustful, **B** true;
B courteous to all men, **B** friendly with few;
B temperate in argument, pleasure, and wine;
B careful of conduct, of money, of time.
B cheerful, **B** grateful, **B** hopeful, **B** firm;
B peaceful, benevolent, willing to learn;
B courageous, **B** gentle, **B** liberal, **B** just;
B aspiring, **B** humble, because thou art dust.
B righteous, circumspect, sound in the faith;
B active, devoted, **B** faithful till death;
B honest, **B** holy, transparent, and pure;
B dependent, **B** Christlike, and you'll **B** secure.

A Disclaimer.—In a recent issue of *B. B. J.* a correspondent apparently wrote to you for advice respecting some dissatisfaction with judging; and your answer being headed 'E. G.,' it has been suggested that the query was from me. Will you kindly publish a denial, as I have not written to you on the subject, nor am I disposed to question the correctness of awards in this district?—Edward J. Gibbins, *Neath, Glamorgan, Sept. 30th.*

Echoes from the Hives.

Burn Hill, September 23rd.—Perhaps you will be at a loss to know where Burn Hill is. It is a small wayside station, situated about midway on the main line between Darlington and Newcastle. It is absolutely a heather district, and at the beginning of the heather season many bee-keepers in the county of Durham send or bring their bees per passenger train, and are placed in a small grass field belonging to me adjoining the station. We had ninety-three stocks this year, which is below the number of other years, owing to bad season of last year. The ling this year has been excellent, the best bloom that has been known for years, and had the weather been favourable the honey yield would have been far above the average; but on the whole good strong stocks have gathered upwards of twenty pounds of pure ling honey, which will more than repay for labour and expense in removing them to the moors.—J. D. L.

Rusholme, Manchester, Sept. 28th.—I have long strained my eyes to see an echo in the *Journal* from the vicinity of Manchester. I am anxious to know if bee-keeping is a success in this quarter. I note the advertisement this week, which savours of enlightenment, from Withington, about a mile from this, but would like very much if you would invite an echo in the *B. B. J.* I would like to know if some of our friends could give the name of a poultry book which holds the position towards poultry-keeping to what Cowan's *Guide* does to beginners in bee-keeping, *i.e.* indispensable. I have been lately to Buenos Ayres, S. A. There is not much bee-keeping done there. I heard of one apiary in Lomas (a small country town twenty miles out on the Southern Railway); about 200 bar-frame and other hives were kept. The owner was a Swiss, who had come from the United States. This gentleman had the whole monopoly—in fact, I could hear of no other. No one is allowed to have bees unless a good number of miles out of Buenos Ayres. Although I was out at Lomas a number of times I was very sorry I could not visit Mr. Noelling's apiary. I trust to be able to send an echo next year, but would esteem it a favour if you would invite one in next week's issue.—J. Wallace.

Long Framlington, Sept. 28.—Looking through the notes by a cyclist in his tour from Ashington to Wooler, as regards the bee-keepers of Long Framlington he has been misinformed, as I myself only kept five hives over the winter, four of which swarmed *twice* early in the summer months; and I have taken a quantity of honey. From one old hive I got twenty-one sections of heather honey. From her first swarm fifty-four, from second eighteen, all saleable.—J. Neal.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

W. D. Marlow.—*Queen remaining in Cell after arriving at Maturity.*—This frequently happens when another queen is present in the hive. We will take the case of a colony having a queen-cell and a queen present. A certain number of the bees will surround the cell, and protect it from any interference on the part of the queen at liberty. When the imprisoned queen is ready to issue from the cell, she is prevented from doing so by the bees, who feed her in this position

until the queen at liberty accompanies a swarm, then she is allowed to issue. In your case she remained in the cell for a very long period, much longer than we have ever known a case. We have often seen them thus imprisoned for four or five days, but, you know, 'bees do nothing invariably.' Your being suddenly attacked by the colony is of no moment, as, perhaps your attention being distracted by watching the queen, you made a sudden movement, thus irritating them.

H. F. B.—*Hornets' Nest.*—Wait until a severe frost has killed all the workers, and rendered the queen or queens remaining dormant. By so doing all the larvæ will have hatched out. You will thus be better able to keep the nest as a specimen or curiosity.

WM. MITCHELL.—*Condemned Bees.*—Bumping is much the best plan in cold weather. To subjugate the bees, use carbolic acid, and knock on outside of hive for some time in order to 'wake them up' from their lethargy. If you use smoke, it is apt to stupify them, as you must stop up entrance while so 'waking them up.'

T. NIXON.—1. *Nuclei.*—We should call such as you describe very fair stocks for this season, and not nuclei. They will winter well if properly provisioned. 2. *Bees under Trees.*—We much prefer hives so shaded if the position is not damp.

P. J.—*Foul Brood.*—The sample of comb sent is badly affected with foul brood, no doubt of recent infection, as a colony so affected would not have been able to show so good an account of itself as yours has done. You can do nothing with it until the spring, unless to destroy it, it is too late in the season.

W. J. S.—*Sugar.*—We should not use the red brand. In former numbers we have advised the black brand. The difference in price is about three shillings per hundredweight.

T. M. D.—1. *Drones in Hive.*—As a rule, when a queen is introduced to a colony at this season having drones, they are turned out within a few hours of such introduction. No doubt by this time such has befallen your drones. 2. *Drones visiting Hive.*—Drones are common to all hives in an apiary or neighbourhood. They frequently make—shall we call them?—mistakes, and where they at this season endeavour to enter a hive having a fertilised queen, they are refused admission, or thrown out if they happen to gain such admission.

H. HARVEY.—*Virgin Queen.*—The queen sent is a virgin.

J. D. MORT.—*Moving Bees.*—You must wait until the bees have been confined to the hive by winter weather for at least six weeks, then move them.

W. R.—*Samples of Honey.*—The light-coloured honey seems to us to be what it is represented to be by the seller. We consider it good honey and gathered from clover, and do not find the bitter flavour which our correspondent says he detects. The heather honey bottle was broken, and the honey had run out to the last drop, and therefore we were unable to see or taste any of the contents. The smell seemed to be agreeable.

J. G. HARDY.—*Queenlessness.*—The presence of drones at this season when they are destroyed by other hives, indicates that the bees are either without a queen, or they have a drone-laying one, or a fertile worker.

TOMTIT.—We would recommend you to purchase Cowan's *Guide Book*, which contains descriptions of the typical hives generally in use by bee-keepers with measurements; also note those hives which gain first prizes at the various shows throughout the country.

NOTICE.

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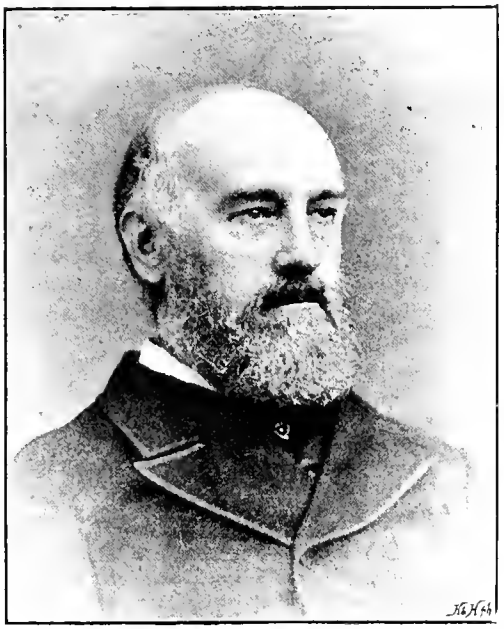
Editorial, Notices, &c.

EMINENT BEE-KEEPERS.

No. 13.—ALFRED NEIGHBOUR.

We have much pleasure this week in presenting a portrait and biographical sketch of Mr. Alfred Neighbour, who without dispute, may be pronounced to be the oldest established purveyor of bee-keeping appliances in the British Isles. Being in the apiarian business long prior to the publication of the *British Bee Journal*, Mr. Neighbour is quite a repertory of facts respecting the founders of what may be termed 'modern bee-keeping.'



ALFRED NEIGHBOUR.

Mr. Neighbour was born in High Holborn, London, on the 24th of October, 1825. He is the son of the late Mr. George Neighbour, and a member of the firm of George Neighbour & Sons. His father established the business in Holborn about the year 1814; and in 1824 Mr. Thomas Nutt, of Spalding, Lincolnshire, inventor of the Collateral and other hives, offered him the agency for the sale of these appliances. In 1827 Mr. Nutt published the first edition of his work entitled *Humanity to Bees*, which ran into a seventh edition. Mr. Nutt was in the habit of periodically visiting his patrons who resided in the neighbourhood of London; and Mr. Alfred Neighbour frequently accompanied him in these excursions, and witnessed his fearless manner in manipulating with bees, and thus in very early life acquired a taste for apiarian pursuits.

For many years a public apiary was kept up by Mr. Neighbour in the Zoological Gardens, Regent's Park. The hives were originally Nutt's; at a later period the Unicomb and other transparent hives were substituted, which proved to be more attractive to visitors. These excited considerable interest, and were by no means the least valued objects in the Gardens. The Royal princes and princesses were accustomed when children to pay frequent early morning visits to the Gardens, and the bee-house came in for a share of their attention. On one of these occasions Mr. Neighbour was fortunate to be at the apiary, and had the honour of pointing out to them the queen-bee, and explaining the mode of working the hives. This apiary was pulled down to make room for the large monkey-house, and the Council of the Society have not seen their way to erect another bee-hive house in its place.

The Great Exhibition of 1851 offered the first opportunity for the competitive display of hives. Side by side with the late Mr. John Milton, of No. 10 Marylebone Street, Wimpole Street, Messrs. Neighbour exhibited living bees in glass hives and a collection of bee furniture. It was at this Exhibition that a French exhibitor, M. Debeauvoys, was awarded the first prize for his vertical frame-hive. This was the earliest frame-hive brought to this country, excepting Huber's leaf-hive, which differs in construction from that technically known as a frame-hive. The moveable-comb hives then constructed in England were those of Dr. Bevan, Mr. Golding, and Mr. H. Taylor, which had top-bars only. The combs had to be severed from the sides of the hives whenever required to be drawn out and inspected.

The success attending the Great Exhibition induced other exhibitions to follow, and at Dublin, Edinburgh, and at Paris, the firm of Neighbour & Sons received many prizes for their collection of miscellaneous appliances.

Mr. Neighbour was very closely acquainted with Mr. Henry Taylor, of Highgate, author of the *Bee-keeper's Manual*, who frequently was a guest of Mr. George Neighbour, at Dorking, whither the latter gentleman had retired when he was released from business; and in consequence of this intimacy Mr. Neighbour had many opportunities of improving his knowledge of apiculture.

In consequence of an offer from Mr. Hermann in Switzerland to send over a Ligurian queen-bee to be placed at the head of an English stock, Mr. Woodbury was induced to avail himself of the offer, and at the same time Mr. Taylor persuaded Mr. Neighbour to make application for a queen; the two queens arrived simultaneously. Mr. Woodbury was successful in joining his queen to an English stock. This was the commencement of a new era in bee-keeping, and with the introduction of the Ligurians to this country, there sprang up an acquaintance between Mr. Woodbury and Mr. Neighbour

which continued till the death of the former in July 1870, at his residence Mount Radford, Exeter.

Soon after the introduction of the Ligurian bee, Mr. Langstroth, the American apiarian, published his work, *The Hive and Honey Bee*, which described his invention of hives on the bar-frame system, and at the same time bar-frames were also brought to notice in Germany by Baron von Berlepsch, who made improvements on Dr. Dzierzon's method. Mr. Woodbury was not slow in estimating the value of this invention, and, in adapting the combs of his bar-hives to it, he constructed what he termed 'a compound frame,' which consisted of a frame with open top and shoulders on each side of which the bar rested, whilst the comb as taken from the hive was suspended vertically within the frame. Messrs. Neighbour, who were the first vendors of Woodbury hives, resorted to fixed frames as originally planned, and which have been in use ever since.

The second London International Exhibition was held at South Kensington in 1862, at which Messrs. Neighbour exhibited living bees and hives. The space awarded was in the Agricultural Annexe, a location not nearly as good as that in the first exhibition of 1851.

Mr. Neighbour in recent years has been much engaged, with the aid of Mr. Duncan Keir, of Scotland, who was introduced to Mr. Neighbour by 'The Renfrewshire Bee-keeper' (J. M. McPhedran, Esq.), from whom also many valuable hints were given to assist the enterprise, in packing and forwarding humble bees to New Zealand during winter and whilst in a torpid state. These bees were much needed in the colony for the fructification of the red clover, the blossom of which is inaccessible to the ordinary honey bee.

The importation of Cyprian, Syrian, and Holy Land bees has also claimed much of Mr. Neighbour's attention. Mr. Frank Benton, who, as is well known, had made a temporary home in Cyprus and Syria for the purpose of procuring queens from native sources, was accustomed to forward small colonies of these bees to Mr. Neighbour to be refreshed at his apiary, and re-shipped to Mr. D. A. Jones, in Canada. Some of the earlier consignments were very satisfactory, but, owing to a change in the packing, the business became so discouraging (but few queens survived), that it was discontinued by him.

Mr. Neighbour was the first to introduce the Carniolan bees into this country. He continues to cultivate and recommend them for their docile qualities.

At the Swiss or German department of the Exhibition Mr. Neighbour purchased the impressed metal plates for making wax foundation. Many castings were made from the original and disseminated to various parties.

From the foregoing it will be seen that Mr. Neighbour has enjoyed unusual opportunities of becoming acquainted with the leading apiarian celebrities of the day; among others the Rev. William Charles Cotton, M.A., rector of Frodsham, Cheshire, and Dr. Coster, of Hanwell.

In 1880 Mr. Neighbour attended, in company with Mr. S. Stutterd, the translator of Dr. Dzierzon's book, the German meeting of bee-masters at Cologne, at which his firm were exhibitors, and received from the hands of the Burgomaster at the public distribution of prizes the State silver medal. He had the pleasure of being introduced to most of the leading bee-keepers attending the Congress, which included Dr. Dzierzon, Herr Vogel, the Baroness von Berlepsch, Dr. Pollman, and many others.

Reference has been made to Mr. Neighbour keeping bees at Dorking, but 'foul-brood' unfortunately broke out in his apiary there, and a convenient plot of ground offering at West End, Hampstead, he began afresh nearer London, which was so much more convenient for him. Over twelve years' residence at Hampstead was brought to a close in consequence of the ground being required for building purposes; so a place had to be sought removed from the liability of such disturbance. This was found at Buncefield, Hemel Hempsted, where his apiary at present is.

In the year 1852 Mr. Neighbour acquired premises at 149 Regent Street, possession of which he retained till very recently, when they were required for Government purposes. His business is now conducted at 127 High Holborn.

Mr. Neighbour is the author of a work on bees entitled *The Apiary; or, Bees, Bee Hives, and Bee Culture*, which has passed through three editions. He has a library containing perhaps the largest and best collection of books on the subject of bees and bee-culture of any one in the kingdom, many of the works being of great age and very rare.

BRITISH BEE-KEEPERS' ASSOCIATION.

Second Class Examination.

Candidates intending to compete for Second Class Certificates at the examination to be held on November 1st and 2nd, are reminded that notice of their intention must be given to the Secretary of their County Association on or before Saturday next, October 12th.

Quarterly Meeting and Conversazione.

The next Quarterly Meeting, &c., will be held on Wednesday, the 23rd inst. Members desirous of reading papers, &c., should communicate notice of the same to the Secretary as early as possible.

USEFUL HINTS.

General Work.—Little can now be done except tidying up. Clear away any weeds which may be growing in the near neighbourhood of the hives, and should any bushes be close to the hives this is a good opportunity to prune them into shape, as may be necessary. Examine the coverings over the frames to ascertain if the wet gets through any of the roofs. Increase any winter covering where necessary, and then let your bees rest undisturbed till the new year is well in.

We have read with very great pleasure the following law passed by both houses of the Reichstag, and duly signed and promulgated by the Emperor of Germany, for the regulation of bee-keeping in his empire:—

We, William, King of Prussia, &c., decree throughout our Monarchy, by sanction of both Houses, the following, to wit:

1. The privilege of bee-keeping to all inhabitants on their own property.

2. The same right to all renters or lease-holders, by permission of the owner of the property.

3. Apiaries may be established anywhere, against objections of neighbours, by enclosure of at least 2½ metres high; from April 1 to October 1, 10 metres high (this is in case of neighbours objecting).

4. Moving apiaries to forests, buckwheat fields, or any other pasture, each must respect a distance of 200 metres, and 25 metres from any public highway.

5. Near bleaching, dyeing, or tannery establishments, the distance of 50 metres must be observed.

6. Apiaries will be protected by civil right and law.

7. The swarm issuing is the exclusive property of the owner of the parent colony, with the right to capture the same, wherever found, without trespassing.

8. An absconding swarm is ownerless, as soon as sight is lost of the same.

9. Such swarm will be the property of the capturer.

10. In case of swarms uniting, each rightful claimant has a joint interest in the same; but in case of a disagreement, decision will be made by arbitrary lot, or sale of the same, dividing the proceeds according to the interest of each.

11. If a swarm enters a hive of any other apiarist, inhabited by a colony of bees, all claims on the newly-entered swarm by its former owner cease at once.

12. All transgressions of rules 3, 4, 5, will be punished by a fine of 150 marks or six weeks' imprisonment.

13. Any one who wilfully or maliciously in any way destroys (so-called) robber bees by water, fire, steam, or poison, or trap, shall be fined 600 marks, or an imprisonment for one year.

14. A fine of 600 marks will be imposed on any one who sells bees, hives, products, or implements infested by foul brood.

15. A fine of sixty marks, or imprisonment for two weeks, will be imposed on any who (*a*) recklessly sells or gives away hives, boxes, products, or implements, &c. (*b*) Who carelessly in his apiaries sets up such colonies, or leaves scattered about combs so infected. (*c*) Who neglects to remove foul-broody, infested hives, or close the entrances of the same.

16. This law is to take effect on and after October 1, 1889; after which date all former statutory laws, rules, and regulations relating to bee-keeping will cease to be in power.

This is a law that should forthwith be incorporated into the statute-book of every nation. Its terseness and straightforwardness are quite refreshing. The tantalising ambiguity of our verbose English Acts is conspicuous by its absence. Sections 3, 4, 5, and the requisite penal section 12, are excellent. No one should be prevented from keeping bees, but we must equally demand that all reasonable precautions shall be taken to prevent nervous persons from being annoyed by the bees. In section 7, we take the words 'without trespassing' to mean that the act of following a swarm of bees, even on to another man's land, shall not constitute an act of trespass. Had section 13 been on our statute-book, Mrs. Mary Viccars would have found her quondam amusement very much more expensive than she did. We suppose that had Mr. Tarrant lived in Germany he would have been fully compensated for the loss of his bees. The provisions of sections 14 and 15 show that Germany is infested with specimens of that despicable species of humanity which is unfortunately not by any means unknown amongst us. Nothing would give us greater satisfaction than to be able to inflict the pains and penalties laid down in these sections on certain disreputable persons in this country who have sold infected bees and appliances with a full knowledge of what they were doing.

Would it be too much to hope that the B.B.K.A. could devise some method of stigmatising those who have sold, and who may in the future sell foul-broody bees? We fully appreciate the difficulties surrounding the question, but the B.B.K.A. could at least refuse to allow a person who had been proved guilty of selling foul-broody bees, or not taking proper precautions to free his bees of foul-brood, to continue or become a member of the B.B.K.A. We have plenty of honourable dealers,—all honour to them!—then why should we longer hesitate to denounce the wrong-doer? Again, much blame has been cast upon experts for spreading foul brood while on their tours, and we have no hesitation in saying that some have not used either proper or sufficient means to obviate the danger. In such cases it is clearly the duty of the B.B.K.A. to withdraw the certificate of efficiency and publicly announce that such and such a person no longer holds the expert's certificate of the B.B.K.A.

A TALE OF INVERSION.

I keep a couple of stocks of bees in the old-fashioned straw skeps, partly as an ornament, but mainly for 'Auld Lang Syne.' They cost me practically nothing, as I seldom, if ever, feed them. Sometimes I get a swarm or two from them, which I place into a bar-frame hive; at others I get a super of comb honey. On the whole they give me very good returns on my original outlay, and it must be a very bad year if they do not earn their 'bread and salt.'

Early last May one of them showed signs of being very populous, and I felt certain they would soon swarm if left to their own resources, so I resolved to practise 'inversion' on them. In the centre of the crown of the skep was a large bung-hole, to allow of its being supered. I took another floor-board, and nailed two pieces of wood, about an inch square and six inches long, on the floor-board in the form of a V. I then withdrew the bung from the crown of the skep, and turning the latter top-side-t'other-way, I rested what was the crown on this V on the floor-board, and the bees used this in future as their flight-hole.

Bishop Butler, who recommended 'inversion' 250 years ago, used to place an empty skep on the full one—mouth against mouth—and allow the bees to use the flight-hole in the middle of the erection he thus had created. But, as you observe, I did not slavishly follow Bishop Butler.

But to return: I next placed on the mouth of my upturned skep an adapting-board, of queen-excluder zinc, which I had hunted out from my 'limbo of fossilised bee-gear.' It is five years since I used a queen-excluder last, and this year has only confirmed my belief in its being unnecessary, as I have not had a single egg laid nor a single grain of pollen carried into a super for a whole season. My reason for using it now was because the cells being in an unnatural position through inversion, I thought the queen might be unwilling to lay in them if she could find others in a proper position in the super.

On the top of the excluder-zinc I placed a crate of twenty-one 1-lb. sections; in twelve days I found they were nearly all full of comb, and were being filled with honey rapidly, consequently I lifted the first crate, and placed another, precisely like it, underneath the first, and found they soon took possession of this also. On the twentieth day after being inverted, they threw a large swarm, weighing nearly six pounds; but they had not finished my forty-two sections as I had wished, consequently I took up the queen and allowed them to return. Nine days after they again swarmed, headed by a

virgin queen of course. This swarm I placed on ten bars full of foundation. I at the same time removed the two crates with the forty-two sections, also the queen-excluder zinc, and replaced the skep back in its old original position. I found a cluster of four sealed queen-cells fastened to my sheet of zinc; and as a virgin queen had hatched, and gone with the swarm, I concluded they had reared at least one queen in the body of the skep, but to be certain not to leave them queenless, I cut off one queen-cell from the zinc, and fastened it down in the bunghole at the top of the skep. They two days afterwards threw a second swarm, and I wished then I had not given the queen-cell in the bunghole, as I found it had hatched out when I examined it; but I placed this second swarm also in a bar-frame hive, with some misgivings about depopulating the old stock too much, but they soon got so strong that I feared they would again swarm, consequently I placed a bell-glass super over the bunghole, and in a few days they took possession of that also, and it is nearly filled with sealed honey on the date I am writing this. If full it holds 10 lbs., or thereabouts.

But to return to my original swarm. I found nine of the forty-two sections were not finished; these I placed in a crate, and added twelve empty ones to them, and placed them on the swarm; a week after I lifted these, and placed another crate of twenty-one empty sections under it—these were all filled in due course.

The second swarm have built out their ten combs of full sheets of foundation, and this is the sum total:—

Two colonies of bees in bar-frame hives;

Twenty combs with sufficient stores for winter;

Seventy-five 1-lb. sections of comb honey;

A bell-glass containing, say, 8 lbs. comb honey;

And the old stock in the skep as good as ever. How is that for profit for a hive that claims to give the maximum of profit for the minimum of labour? The bees are the despised black, the owner is known as—'Amateur Expert' (*The Bee Hive*).

Foreign.

INDIA.

The Wild Bees of India.

Of all the many dangers to which the wandering sportsman and traveller in the wilds of India is exposed is that of being suddenly attacked and stung to death by a legion of the large brown honey bee, called in the vernacular language 'Sarung.' This ferocious insect needs no greater provocation than the report of a gun, the smoke of a camp-fire, or even the fracture of his huge pendulous home by a gust of wind! He prefers the vicinity of water, and hangs his honey receptacle to the sides of steep cliffs, though inaccessible structures of masonry, such as the arches of city gates, bridges, and palaces, in inhabited places, are often selected for his stronghold. I remember at one gateway at Lucknow the heavy combs long existed without any hurt to the passengers. They grew in size and weight, till they were dislodged by a high wind; then the winged army assaulted every living thing that it met. A proclamation was issued by beat of drum that no man or beast could pass that way, and this state of siege lasted three days, the shops being closed. Recently a horde of this much-dreaded fly has established itself on a railway viaduct in Central India. Printed notices are circulated that the passengers must close their windows before arriving at the spot, the noise and vibration rendering these bees very warlike. I have had many narrow escapes from the flying furies, and once had the satisfaction of seeing them turn their rage from me, who had just fired a heavy gun at close quarters, into a big bull buffalo, to the animal himself as he rushed headlong in the swarming masses crawling up the trunk of an ancient tree. Such a sight as I shall never see again was the dusky cloud of swift avengers descending on that bull's body clad in sting-proof hide. With tail in air and head lowered, the ponderous quadruped was galloping over the boulder-spread arm of a river, dashing heavy stones around his hoofs in a hasty retreat to the dense forest. I, too, had betaken myself into leafy concealment, through which I speedily ran away. Many and unexpected accidents (sometimes ending fatally) have I known, for these bees give no quarter. When their victim jumps into a river, they hover over the surface till he reappears, and then simultaneously swarm on his head; hence men are often drowned.

Here is a sample of the disasters the angry tenants of an old colony can inflict: A troop of horse artillery had arrived in a pleasant grove to encamp in course of march. The men were busily occupied in preparing for their rest, and had begun to picket their horses, when the smoke from a cook's fire annoyed an unseen bee-haunt; as usual, the irascible inmates swooped down on every intruder, biped and quadruped. There was a general skedaddle. Men and horses bolted across the plains, some of the horses throwing themselves down, and in their agony smashing the saddles on their backs, many of them not being caught for twenty-four hours! Yet the aboriginal men, called Ghoords, in the Nerbuddah districts, possess the art of taking those great honey-combs, hanging in such tempting profusion along the precipices of the above river, slinging themselves by rude ropes of twisted bark, which to my eye looked very hazardous. I did not venture to attend as an eye-witness, but was informed that these men rub their naked bodies with the pounded leaves of *Ocymum sanctum* (Sacred Basil), and at the same time produce a smoke from some pungent herbs mixed with dry cowdung, under the fumes of which they carry on their operations with impunity. The early dawn is the period chosen for the exploit. The honey is of excellent quality, and this, with the wax, constitutes a large article of trade for these wild men.

There are many other species of honey-making bees. A particular favourite of mine was one no larger than a house-fly, frequenting shrubberies and gardens, where it hangs its comb in the lower branches of some odoriferous tree. Merely flapping a swarm with a bunch of green leaves disperses the mild-tempered little workers, who take their departure, and leave the captor in quiet possession of the stolen sweets. Bears go long distances in quest of such dainties. When attacked, Bruin packs himself into a ball, like a hedgehog, the legs of the bees getting entangled in his dense clothing of stiff hair, he patiently awaits their fruitless efforts to injure him, and bides his time to feast on the broken combs.—Eos. (*English Mechanic.*)

Recipe for Pure Honey.—'Put in a small vial about one ounce of the honey to be tested, fill the vial with pure cistern water, shake thoroughly to dissolve the honey, then add to the admixture about a thimbleful of pure alcohol. If the honey is pure, the solution will remain unchanged; but if adulterated with glucose, it will be turbid and whitish. This is the means used by the honey-dealers of Paris to detect adulterated honey.'—(*Annales de la Société d'Apiculture de l'Aube.*)

ASSOCIATIONS.

HEREFORD HONEY FAIR.

The fifth annual honey fair, promoted by the Herefordshire Bee-keepers' Association, was held in the Butter Market, on Wednesday, Sept. 18th. There was about the average number of entries in the competition for prizes, and the quality throughout was of such superior excellence that considerable difficulty was found in the judging. Altogether 1350 lbs. of honey in the comb and run were sent, and a very good demand was experienced. Prices varied from 9*d.* to 1*s.* per lb., though there was not a large quantity at the lower price. The judge in the competitions was Dr. Chapman, and the arrangements for the fair were admirably made by Mr. Alfred Watkins, the hon. secretary of the Society. The total value of the prizes given was ten guineas, the first prizes in the first four classes being the gift of Mr. J. Rankin, M.P., president of the Association. The awards were as follows:—Open only to members of the H.B.K.A. For the best and neatest exhibit of honey, not exceeding 200 lbs., comb and extracted. First prize, silver medal and 20*s.*; second, 15*s.*; third, 10*s.*—1st, Mr. J. Wootton; 2nd, Mr. W. Tomkins; 3rd, Mr. Thos. Charles. For the best 12-lb. jars of extracted honey (open). First prize, bronze medal and 15*s.*; second, 10*s.*: third, 5*s.*—1st, Miss Marillier; 2nd, Mr. W. Tomkins; 3rd, the Rev. George Herbert. For the best 12-lb. jars of extracted honey (novices). First prize, 10*s.*; second, 7*s.* 6*d.*; third, 5*s.*—1st, Rev. James Oakley; 2nd, Mr. Thomas Jones; 3rd, Mr. H. Lewis. For the best 12-lb. or six 2-lb. sections of comb honey (open). First prize, certificate and 15*s.*; second, 10*s.*; third, 5*s.*—1st, Mr. Thomas Pritchard; 2nd, Mr. Feargus Lewis; 3rd, Mr. W. Tomkins. For the best 12-lb. or six 2-lb. sections of comb honey (novices). First prize, 10*s.*; second, 7*s.* 6*d.*; third, 5*s.*—2nd, Mr. W. Mattey. For the best single super of honey, not being a sectional or divisional super. First prize, 7*s.* 6*d.*; second, 5*s.*—1st, Mr. W. Smith; 2nd, Mr. W. Tomkins. For the best exhibit of honey in any shape, taken without killing the bees, and shown by a *bonâ fide* cottager, who has not previously won a prize at any show of the Association (prizes given by Lady Elizabeth Biddulph). First prize, 15*s.*; second, 10*s.*; third, 7*s.* 6*d.*; fourth, 5*s.*; fifth, 3*s.* 6*d.*: sixth, 2*s.* 6*d.*—1st, W. Williams; 2nd, Mrs. Norton.

KENT BEE-KEEPERS' ASSOCIATION.

During the busy season of the year, and with many events occurring to attract the notice of your readers, the routine work of a County Bee-keepers' Association would not be a subject to excite great interest; but now that that period has passed away and the dull season has succeeded, a brief sketch of the doings of the above-named Association may be acceptable. I am happy to state at the outset that the subscription list has been, for the times, generously maintained. The secessions have been comparatively few, and, on the other hand, a fair addition of new members has been secured. The programme for the year comprised the expert's spring visit, a county exhibition, a cottagers' apiary competition, and the bee-tent demonstrations whenever opportunities might offer.

The opening of spring brought to view the disastrous effects of the season of 1888, showing the loss of bee life to be unprecedented in the records of the period during which bee-keeping associations have existed, and the consequences have manifested themselves in some localities right up to the close of the season just ended. In one apiary, almost all being skeps, as many as 100 stocks of bees died during the winter and succeeding spring. However, it is now pretty generally known that bee-keepers of the new school are made of tough material; and as the spring declared itself at the proper period and the sunshine encouraged a fresh start, the past was quickly forgotten, and new plans were promptly laid. How these hopes, backed up by energetic action, have been realised many a cottager can testify. It may be safely said that, taking the county throughout, it has probably been the most successful year that we have ever enjoyed.

The expert's visit furnished no particular incidents to note, but, owing to the fine weather, the ground was covered more rapidly than usual. The county exhibition was held on the 3rd of July at the Archbishop's Old Palace at Maidstone, in conjunction with the show of the Maidstone Rose Club. The expectations which were entertained that, in such a populous and affluent centre, its success was assured, were doomed to disappointment, as the event established the fact that a more apathetic body of visitors would be difficult to find anywhere. The show of honey, although limited in quantity, was more uniform in excellence than at any previous exhibition, and gave striking proof of the increasing knowledge and discernment of the modern bee-keeper. A list of the prize-winners will be found below. An appeal to the members and other influential persons residing in the district for contributions to defray the cost was liberally responded to, and a tax upon the ordinary funds of the Association was thereby almost entirely avoided.

The Cottagers' Apiary Competition among members of the Hawkhurst branch again proved a most excellent means of testing the capabilities of the cottager for acquiring a practical and familiar knowledge of the scientific treatment of bees. Five members entered as competitors, and the following tabulated statement shows the result:—

Hawkhurst Cottagers' Apiary Competition, 1889.

Names.	Number of Hives.	Quantity of Sections.	Honey extracted	Total	Average per Hive.	
		1-lb.	lbs.	lbs.	lbs , oz.	
W. Blake (Butler) ...	1	26	...	26	26	
John Collins (no occupation, crippled) ...	3	37	158	195	65	1st Prize
Jas. Hicks (Farm labourer) ...	6	100	150	250	41 10	2nd ,,
J. Fuller (Farm labourer) ...	1	32	13	45	45	
F. Reed (Gardener)	3	78	95	173	57	

The experience of the past success of the Cottagers' Apiary Competitions marks them as a valuable feature in the Association's work, and suggests the expediency of instituting friendly competitions between *county associations* under a few and simple regulations.

The bee-tent has had only two engagements, apart from the annual exhibition—viz., at Minster and Herne; and on both occasions a definite fee was charged for its use, a profit being thus secured to the Association.

List of winners of prizes at the Maidstone show:—Class 1. Bees in observatory hive—Green & Sons, 1st: Green & Sons, 2nd. Class 2. Collection of hives and appliances—Green & Sons, 1st; H. Hutchings, 2nd. Class 3. Best hive at 15*s.*—Green & Sons, 1st; Green & Sons, 2nd. Class 4. Pair super racks—Green & Sons, 1st; H. Hutchings, 2nd. Class 5. Best collection of comb and extracted honey—F. H. Cudd, 1st prize. Class 6. 2-lb. sections of comb honey—Rev. F. T. Scott, 1st; F. H. Cudd, 2nd. Class 7. 1-lb. sections of comb honey—F. H. Cudd, 1st: Rev. F. T. Scott, 2nd; R. Filmer, 3rd. Class 8. Combs in frames for extracting—E. H. Hodgeman, 1st; F. H. Cudd, 2nd. Class 9. Extracted honey in glass jars—F. H. Cudd, 1st; J. M. Hooker, 2nd.

Class 10. Bees-wax—Mrs. J. Howard, 1st; F. H. Cudd, 2nd.

Cottagers' Classes :—11. Twelve 2-lb. sections of comb honey—F. H. Cudd, 2nd prize (1st not awarded). Class 12. Twelve 1-lb. sections—A. J. Bishop, 1st; F. H. Cudd, 2nd; R. Filmer, 3rd; F. Crocker, commended; E. H. Hodgeman, do. Class 13. Twelve 2-lb. glasses extracted honey—E. H. Hodgeman, 1st; F. H. Cudd, 2nd; E. H. Hodgeman, 3rd. Class 14. Twelve 1-lb. glasses—A. J. Bishop, 1st.—JESSE GARRATT, *Hon. Sec.*

IRISH BEE-KEEPERS' ASSOCIATION.

The Committee met on the 1st inst. Present—Rev. P. Kavanagh, in the chair, Mr. Edmondson, and the hon. secretary. Arrangements were completed for supplying members with the loan of a limited number of spring safety crates and tins for the conveyance of their honey to the Association's depôt, without charge, except for carriage. The hon. secretary was requested to purchase an uncapping knife, to be sent out on loan with each of the Association's extractors. A circular, giving plain directions for extracting, which had been carefully prepared by three members of the Committee, was ordered to be printed and distributed.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements.)*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of September, 1889, amounted to 1528*l.* [From a return furnished by the Statistical Officer, H.M. Customs, to E. H. Bellairs, Wingfield, Christchurch.]

BEE-KEEPING IN THE ISLAND OF ARRAN.

[2332.] The island of Arran, in the Firth of Clyde, has long been locally famous for its honey, both as to quantity and quality. This is easily accounted for by its soil and climate, equally favourable to the clover in the fields and the heath on its extensive moorlands and sloping hills. A remarkable proof of the first statement lies in the fact that the Ayrshire bee-keepers, second to none in skill and experience, year by year take the best of their hives across by steamer at the end of July, or beginning of August, and generally return with an ample reward for all the risk and trouble which the venture implies.

This season it was feared that the excessive drought in July, and the almost continuous rain in the middle of August, would be fatal to the prospects of the Arran bee-keepers and their Ayrshire friends, as the experience of many on the mainland too surely attested. But, instead, the honey-harvest has been fairly good wherever the 'improved method' of bee-culture, which your valuable *Journal* has so largely assisted in promoting, was followed.

To begin with my own small apiary. I started in April with four hives. Wishing to increase their number, even at the expense of my honey supers, I drove four swarms, and took precautions against any further reduction of the strength of the parent hive. In the end of July I was rewarded with 56 lbs. of clover honey of excellent quality. I then removed the whole of them to the heather, two miles off. For a time the weather was dead against the bees. Towards the end of August it improved, and, as I discovered that the heather was likely to continue longer than usual in bloom, my hopes revived. In the second week of September I removed nearly an equal quantity of honey in 1-lb. and 2-lb. sections. Its value, however, was considerably affected by the number of incomplete sections, which in an ordinary year might not have occurred. I thus doubled my capital, and got nearly a hundredweight of honey.

A neighbour, skilful alike as a tradesman and a bee master, was greatly ahead of me. He started with six hives. Four of them, which gave no indication of being as populous as he could have wished, gave him about 50 lbs. of super honey, mostly heather. No 5, which swarmed only once, produced 37 lbs. of clover honey, and 24 lbs. of heather. But No. 6, which did not swarm, and consequently had a large working population, gave 45 lbs. of clover and 48 lbs. of heather honey. The whole amount of super honey was thus 204 lbs. Considering the season, this result was, in my view of it, very satisfactory. It speaks well for non-swarming, and not less for the character given to Arran at the outset as a honey-producing district. If your space allows, other reports from the island may by-and-bye reach you for insertion.—A. R. F., *30th September.*

[We shall be pleased to hear from you on any future occasion.—ED.]

GLASS SECTIONS AND PATENT RIGHTS.

[2333.] Our attention has been called to letter 2309, on page 420, and as the writer seems to be still labouring under a misapprehension, but appears anxious to be correct and just, we beg leave to put him right. He says, 'My contention then and now is that I do not consider it just that men like Mr. Bonner-Chambers, Mr. Rushton, Mr. Nicholson, myself (*i.e.* Woodleigh), and others, who have made, used, exhibited, and sold glass sections years previously, should have to procure a license from Mr. Hewitt to continue to make in the future glass sections such as they had made in the past.'

We do not see why he should make such a 'contention,' seeing that only such glass sections that are wholly or partly held in position by means of the honeycomb within them are claimed in patent No. 7660, 1888, which was a new mode of constructing them at the *date* of the patent. When Mr. Bonner-Chambers, in the *Journal* for October 4th, 1888, advanced the possibility of being able to dispense with the means of holding them together after being filled with comb by the bees, the editor, in the issue for November 1st, in a leading article, disputed this as being possible. Mr. Bonner-Chambers stood alone, no one, not even Mr. Rushton, coming forward to support him, the supposition being

that the only other person who could do so was the inventor of the 'Hallamshire' glass section, who had seven *months* previously patented all sections constructed on *this principle*, and was therefore 'laughing in his sleeve.'

Every mode of making glass sections previous to this required some means of *securely* holding the glasses together at the corners, unless all in one continuous rim, and all these sections are open to the public without any fear of being interfered with, as intimated in the *Journal* for August 22nd, page 368, and *Record* for March. But it so happens that *some* of the public do not want to mess with corner joints, &c., but want to make and use them without, or, as one has put it in a private letter, 'If I take off my corner fastenings *after* the section is filled with honey, I fail to see any difference between mine and a "Hallamshire" section;' and he thinks because he can *improve* his section, and make it a 'Hallamshire' one, he has a moral and legal right to make and use the 'Hallamshire' throughout. Unfortunately for such, the law does not help them in their ingenuity, for even sections with corner fastenings that *may be took off*, or used over again on other sections, or which do not *alone* hold the glasses together, are an infringement, and will have to be accounted for. The law says distinctly that the *equity* of a patent must not be invaded in any way.

We don't suppose that 'Woodleigh' contends for a moment that he or others have a right to make or use sections invented since the date of the patent in question, or even those made and used *privately* previous to it that may be on the same principle. If any one should do so, they will stand a chance of paying dearly for what their own common sense would tell them was absurd.

It is assumed by some that if they buy the glasses ready cut from us they will not require a license. We are not going to set ourselves out to cut and sell the glasses. If any one can obtain a supply of waste glass, and wants to earn a honest penny while sitting by the fireside in winter, he will have every facility given him. Making or cutting the glasses will be a pure domestic occupation, the tools for which will cost about *2s. 6d.*, and with one set, sections, say 4¼ in. square, can be cut with them of all one *external* size, no matter how many may be the various thicknesses of glass employed, the simple dodge being to drop a waste piece of the glass being cut in a groove provided for the purpose, which corrects all inequalities in the thickness, and it is only like 'playing' to fill the cut pieces into ordinary supers.

We trust that we have now made the matter clear, and that all who wish to make glass sections may do so without infringing on the patent respecting the 'Hallamshire' ones.—J. Hewitt & Co., *Cambridge Street, Sheffield.*

[We insert above reply to 'Woodleigh's' 'Jottings' on page 420, but have been obliged to cut out, for want of space, a portion of the letter, which is argumentative and not to the point. Now that both sides of the question have been sufficiently ventilated, we cannot afford more space to the subject, and must therefore close the discussion. If any one wants our opinion on any point connected with the patent on which they are in doubt, we will reply in 'Answers to Correspondents.' Should they wish to use the patent, they had better make their own arrangements with the patentee.—Ed.]

Echoes from the Hives.

Keswick, Cumberland, October 5th.—'Echoes' from Cumberland are very few and far between. It is now about twelve months since I sent one, and to give a full account of all the proceedings since then would make a lengthy article, but I will say as little as possible. The last autumn I put by for winter seventeen stocks, and I brought them all well through, but in the spring two of them were queenless. After the disastrous season of '88, I was very fortunate; while at the same time scores of stocks were dying all around, in the spring of the present year I found the greatest part of my stocks in fairly good order, both for bees and food. They did not require much feeding, as I only gave them three stone of sugar, made into liquid, and a few combs partly filled with honey. By the latter part of May I had sections on the greater part of them, and by the latter part of June I was able to take a number of 2-lb. sections. During the time that clover was in bloom the bees did good work. From one hive I took twenty 2-lb. sections all at once, but how many more I do not know; and from another hive that I was working for extracting purposes I took twenty frames, which averaged from four to six pounds each; this would not be far short of 100 lbs. From four hives I took more extracted honey than I know how to get quit off, as it does not sell very well here. Much more honey would have been got in this neighbourhood, but through the drought in some places it was almost burnt up at the time it should have been at its best. Lime-trees came into bloom very early, but through so much dry weather they were of very little consequence. By the latter part of July I had taken a very good harvest of honey, with which I was well satisfied, but still in expectation of reaping a second harvest from heather. By the time that heather came into bloom we had a few showery days; this brought it forward fully a fortnight earlier than usual, and at the commencement of the heather harvest the weather was everything that could be wished for. But this, I am sorry to say, only lasted a few days; sections were rapidly filled, or partly filled, and stored with this precious honey, and in this state they remained, as it was both the beginning and the end of the season of '89. I had scarcely one saleable section when the weather broke. I have now some scores of 2-lb. sections filled with comb, many of them full of honey, but not sealed. Those will be valuable another season. Since the close of the season there has been much plundering going on. I have had one hive cleared out, but I think it was queenless through the continuation of bad weather.—R. Philipson.

Morpeth, October 7th.—Many thanks for your correction in last week's *Bee Journal*, Mr. Neal. I understood the inn-keeper on the right when entering the village to say that his bees had died, and none left; other bee-keepers in Framlington the same way. But I must have misunderstood the gentleman. Certainly I would have paid you a visit if I had known that there was another fancier and a reader of the *Bee Journal* in the village.—Carbonite.

NOTICES TO CORRESPONDENTS & INQUIRERS.

B. B. H.—*Absence of Brood in Hive.*—The condition indicated is quite normal for this season of the year, as brood-rearing in the majority of colonies has ceased for the season.

Intending Emigrant.—*Bee-keeping in New Zealand.*—You will find on your arrival at your place of destination that the New Zealand bee-keepers are in no way behind their brethren in this country. The annual produce of the honey crop there is from 300 to 400 tons, fully half of which is gathered in Auckland province. The success of apiculture in New Zealand is in a great measure due to the zeal and energy of Mr. J. C. Firth, of Manamata. He secured the services of Mr. I. C. Hopkins, the well-known apiarist, and author of the well-compiled work on apiculture. Mr. Firth has established several apiaries in his neighbourhood, fitted with all the improvements for manufacturing bee appliances and purifying wax. The hives in Manamata average a product of 100 lbs. per hive. The honey produced is of a high quality, but

its price is rather low. Since the 1st of July, 1887, there has been published by Messrs. Hopkins, Hayr, and Co., a bee journal, under the name of the *Australasian Bee Journal*, which is devoted exclusively to the interests of bee-keepers throughout Australasia. We would, therefore, recommend you not to encumber yourself with taking with you any bees, the conveyance of which to such a distance is always risky.

E. S. Coxwell.—*Swarm returning.*—We have no conclusive data bearing on your question. In fact, unless the bees were individually marked and very closely watched, and the marking removed from each on its first return, we do not see how it could be arrived at.

W. M., Cottager.—*Partly filled Sections.*—We should prefer to eat them now rather than keep them for twelve months. If you decide to preserve them, then place them in a dry and fairly warm cupboard; but you will find the honey candied hard by next season.

D. S. M.—*Honey.*—The peculiar flavour is owing to the bees having pastured on a yellow-flowered weed, which grows about 12 to 18 inches high, and bears a large umbel of flowers on a single stem. A very small quantity will destroy the flavour of a large quantity of otherwise good honey. Each floret of the umbel is like a small Michaelmas daisy for shape and size.

Bingley.—*Nucleus Hives.*—We very much doubt if your experiment will succeed. If we have a very genial winter they may survive; but the game is not worth the candle, as they would be so very weak in the spring that it would be impossible to build them up to any useful strength before the honey season was over. Better by far put the bees in to one of your stocks and kill the surplus queen.

A Subscriber.—*Site for Hives.*—Due west is not a good position for hives when so overshadowed by bushes as yours will be. If this site must be chosen, so turn the hives round that the entrances will be due south, and the side next the wall instead of the entrance.

J. B. S.—1. *Hive in which Bees have died.*—This may safely be used again, seeing that it is a case of starvation. It would be well to scald it out with boiling hot water, to which salicylic acid has been added. 2. *Queen not visible.*—It is not a certain rule for drones to be present at this time of year if the queen is missing, as she may have disappeared *since* the drones were slaughtered. It is just possible the queen is safe, although you missed viewing her. 3. *Queenless Stock.*—You might unite as you suggest, as it is no use keeping the queenless stock through the winter. It is a pity you could not do it earlier. 4. *Late Swarm in Skep.*—How is this off for food? If very doubtful, why not unite it, the weak lot and the queenless stock into one good lot, saving the Italian queen?

Information Required.—With your permission a little more information from 'Cottager' would be interesting, considering the grand results obtained from his bees this season. One would like to hear whether he had any swarms, or how he prevented them; the size of his shallow frames, and whether they were filled with old combs or only foundation; the date of putting them on; whether his stocks were fed in the spring, &c. I should also think he must have given a good deal of his time to them, as the extracting of so much honey on so many days must take up some considerable time. In extracting from shallow frames is there not some difficulty in getting the bees down, as I find it so in sections, especially if any are unsealed, as the bees always rush when smoked to the unsealed honey to fill themselves? But being only an amateur I may not go the right way to work.—B.

Paris Exhibition.—We are informed that M. Gariel, the agent of Messrs. Abbott Brothers, received a silver medal for their goods exhibited by him.

NOTICE.

The *British Bee Journal* is published by Kent & Co., 23 Paternoster Row, and may be obtained of all local Booksellers, and of the following Agents:—

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BOOKS WANTED.

Gentlemen having any of the following Books to dispose of will oblige by sending date, description, condition, and lowest price, addressed to 'The Editor, British Bee Journal,' 17 King William Street, Strand, London, W.C.

Scudder, S. H. NOMENCLATOR FORLOGICUS.

Siebold, C. T. V. ANATOMY OF THE INVERTEBRATES. Trans. by W. J. Burnett. 1854.

Hunter, John, F.R.S. OBSERVATIONS ON BEES. Phil. Trans. 1792. Vol. LXXXII.

Arbuthnot, Dr. THE CONGRESS OF BEES. 1751.

Bellamy, D. NATURE DELINEATED. 1739.

Bevan, E. HINTS ON THE HISTORY AND MANAGEMENT OF BEES. Hereford, 1851.

Barrett, W. THE ECONOMIST.

Bradley, R., F.R.S. A GENERAL TREATISE OF HUSBANDRY AND GARDENING.

Butler, C. THE FEMININE MONARCHIE. 1609.
" MONARCHIA FŒMININA. 1673.

Dimsdale, J. THE MODERN ART OF BREEDING BEES. 1740.

Gedde, J. THE ENGLISH APIARY. 1722.

Hartlib, Samuel. THE REFORMED COMMONWEALTH OF BEES.

Hyll, Thomas. PROFITABLE INSTRUCTION OF THE PERFITE ORDERING OF BEES. 1579.

Lawson, W. A NEW ORCHARD GARDEN.

Levett, John, Gent. THE ORDERING OF BEES. 1534.

Montague, Peregrine. THE FAMILY POCKET-BOOK. With new discovery of Bees. 1760.

Polhill, Nathaniel. ON MR. DEBRAW'S IMPROVEMENT IN THE CULTURE OF BEES. Phil. Trans. 1778. Vol. XLVIII.

De Re Rustica. 1770.

Ringsted, J. THE FARMER. 1800.

Rusden, Moses. A FURTHER DISCOVERY OF BEES. 1685.

Stevenson, Rev. W. THE GENTLEMAN GARDENER INSTRUCTED.

Thorley, Rev. John. MELISSOLOGIA. 1772.

NOTE.—Where the dates are given, only those Editions are required. It is therefore requested that no other edition be offered.

THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.

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Editorial, Notices, &c.

THE RAILWAY AND CANAL TRAFFIC ACT.

Arrangements have been made for the Mansion House United Association on Railway Rates to represent the Bee-keeping Industry at the Board of Trade inquiry, which opened on the 15th instant.

POLLEN—AUTUMN FEEDING.

Important as is the presence of pollen in the hive at all times, how few bee-keepers there are who give it the slightest thought, especially when speaking of the quantity of stores—meaning honey or syrup—their bees may have to pull them through the winter! Certainly many have been taught to consider it a necessity to give artificial pollen in early spring, but how few apiaries really need it in that form then! Far better to have the natural article stored by autumn of the preceding season.

Some bee-keepers talk of pollen-clogged combs, but we have never yet seen too much pollen in a hive where there is a good queen—we have often seen too little; and some stocks wintered upon combs having not a particle of pollen have dwindled away in spring, while others in like condition standing near, being early supplied with combs heavily charged with pollen have at once started a large brood-nest, and increased amazingly in numbers thenceforth.

That is a poor district for bee-keeping where little pollen is gathered at the latter part of summer and none at all the following spring until the advent of April. Such we know, and there the care and management required to command anything like success are threefold what is needed in a good pollen district; and yet it happens that in just such a locality some apiaries have this year given a small surplus and many stocks have needed no feeding, even for winter.

However, it is not always the peculiarity of the district that is at fault. Scarcity of pollen in the combs stored for winter may be caused by mismanagement. Look at your combs in August; those bare of pollen will be the exception. Presently you commence stimulative feeding because so many works assert that it is necessary to induce the breeding of young bees in autumn to stand the winter. And it *is* absolutely necessary that for whatever feeding is done a relative proportion of young bees must be brought into existence to compensate for the loss of vital energy, and deaths induced by the storing of such winter food.

But we by no means recommend feeding purposely to produce young bees in autumn, particularly not in late autumn. It is unwise, nay, suicidal, to allow bees to take syrup after the middle of October. It is desirable, and most economical, to feed not later than August. Stimulate to heavy brood-rearing later than this month, your already stored pollen is used up to produce young bees, which are not one-third so well able to stand the severity of winter as those older workers you wear out in producing them.

Remember, your pollen is gone; therefore your autumn-reared bees are compelled to hold out without further brood-rearing until the spring is far advanced before brooding can again commence. The consequence is, before young bees are hatching the already too-old nurses are rapidly dwindling in number, and if the stock recovers at all it is often at a very slow rate as compared with those allowed to settle down in a normal condition before winter.

Under the latter condition brood-rearing very gradually declines until the latter part of September, and with a young queen there are always quite sufficient young bees. The bee-bread is still on hand in quantity, and by the first of the new year the queen recommences her duties. What a remarkable difference! Young bees are *now* produced in steadily increasing numbers; as yet but few flights occur, and, consequently, little loss of life among the older bees. But little evidence of life is exhibited on the outside, but inside the hive all is silent, progressive activity.

And how are we to secure the equivalent of this normal state of things? Shame on him, whose useless tinkering with the frame-hive leads him to think that, after all, bees come out best in straw-skeps. Where is reason? where progress? First of all, is it desirable to feed heavily in autumn, as so many do? Stores are accumulated only at the expense of great vital energy, even when secured in summer; how cautious then ought we to be to avoid this waste of power by heavy feeding just before a long spell of cold. By all possible means avoid extracting from the brood-chamber; if you get all the summer's harvest stored above, well and good, but what you remove from the stock combs after August will cost you far more than you can ever get for it.

Avoid feeding in autumn whenever there is a possibility of a stock holding out till March; avoid it, whenever two or more stocks united give sufficient store. If

by no means to be avoided, then get it over early, get all finished before August closes; and feed quickly, while there are still numbers of young hatching, and many old bees can be made use of, which latter must inevitably pass away long before winter comes on.

August too early, you say! Yes, certainly, if you wish to waste half your syrup, most of your labour, and drag brood rearing on too long to be of any advantage. Feed all in one dose, and you save time, you save stores, and economise the power of reproduction for the following season. Numbers of instances, for many years past, have conclusively shown that August is not too early. Stocks have been so fed to the greatest advantage while others having stored themselves early in August, have removed much of their brood to make room for the incoming store, have ceased breeding before the end of the same month, and were among the best the following season.

The bees were of those varieties of which it is often affirmed that they consume all one can give them for winter stores in rearing more brood. The fault is not in the bees but in the keeper, who does not understand how to close down the brood-nest.

In all your calculations consider pollen as the first element of success, without it the finest queen is of no avail. Feed when necessary, but feed judiciously.

RENDERING WAX.

In the rendering of wax from refuse combs a great deal depends on how cleanly the work is done. Very often there is so much loss through carelessness in bespattering cloths, dishes, &c., which hardly compensates for the wax taken. Old combs yield very little, but it is the best plan to get these melted up, and thus prevent a *warren*, or feeding-ground, for the wax-moth to multiply. Where one can afford to buy a wax-extractor, this will be found a most useful article, especially for clean new combs, and as the whole apparatus is usually complete in itself, there is little need to soil other dishes with wax. Some bee-keepers do not care to go to the expense of an extractor, and to those the following method may be found useful:—After the honey is taken from the combs, these should be washed in a running stream, or under a tap, to remove all honey left, and as much of the pollen as possible. Squeeze the combs into balls with the hands, and put in a bag—a washed sugar-bag will suit the purpose. Fill the boiler or copper with water, preferably rain-water, and sink the bag of combs in the boiler under the surface of the water; at the same time see that the bag does not touch the bottom. As the water boils, the wax will ooze out of the bag and float on the surface, where it may be allowed to cool, and taken off in one sheet, or it may be skimmed and dropped into cold water, which will greatly improve the colour. A second melting and straining through a piece of muslin into any desired *mould* completes the operation.

In most dairy farms there are large boilers for steaming turnips and soft food for cattle, heated with a steam pipe let into the water in the boiler. Where the use of these could be had, a large lot of combs may be melted up in a short time by filling the bag with combs and heating as above mentioned.

Those who desire to have a first-class sample of wax should, at the beginning of the season, collect all the comb-cappings and pieces of white comb, free from pollen, propolis, or comb-foundation. These should be washed and put aside till the desired quantity is collected. Wax taken from combs gathered in a clover district is of a pale yellow or straw colour, while that from a heather district is almost white.

It is erroneous to suppose that the more wax is boiled it will become lighter in colour. Dark wax may be made lighter in colour by pouring it into cold water. When put in the moulds, allow the cakes to cool slowly, as they are apt to crack, and so mar the appearance if intended for exhibition.—W. McNALLY.

INFORMATION REQUESTED RESPECTING PARAGON HIVE.—Some few months ago 'Dunbar' gave a description in the *B. B. Journal* of a non-swarming hive called the 'Paragon,' brought out by Mr. Howard, of Peterborough. Will 'Dunbar,' or any other readers of the *Journal* who have tried this hive, kindly give the result of their experiences with it? I think it will be of interest to bee-keepers to know whether or not all that was claimed for this hive in theory has stood the test of practice.—A READER.

STANDARD GLASS JARS.—Now that a 'Shropshire Bee-keeper' has put this question to the vote, I must say that honey put up in tie-over jars has nothing like the finish given it as when in screw-cap jars, and I therefore speak in favour of the latter.—A LEICESTERSHIRE BEE-KEEPER.

SHALLOW BODY-BOXES.—I noticed a paragraph in your valuable paper respecting shallow body-boxes, which, I believe, from the easy way in which they can be manipulated, are gradually growing in favour. May I ask those who have had experience with such if they will be good enough to furnish, through the columns of the *B.B.J.*, the exact dimensions of the boxes and frames, and at the same time say if they are better used in upper as lower storeys? I, for one, am about to increase my stock of hives in readiness for the next season, and feel inclined to give the shallow bodies preference, in order to obtain as much run honey as possible.—A LEICESTERSHIRE BEE-KEEPER.

ROOT'S FOLDING BEE-TENT.—Will some of your readers give me their opinion of Root's folding bee-tent for manipulation? When robbers are about, if they consider it of much use, and give particulars of how to make one in the cheapest way? how much netting it will require, and how it should be cut, &c.?—T. D. S.

AN EXCELLENT EXHIBIT.—Mr. R. McKnight's exhibit in the apiary department at the Toronto Industrial was undoubtedly the attraction of that section of the exhibition. The *Empire* says of it:—'In this department Mr. R. McKnight, of the Homewood Apiary, Owen Sound, who has done much to encourage bee-culture in Ontario, has for several seasons past been labouring to make the exhibit an attractive one, and while the large number of prizes he took this year attested the excellence of the various grades of honey shown by him, crowds were attracted around his exhibit from the handsome appearance it presented. It was certainly the finest and

most artistically arranged display that has ever been seen in the apiary department.' The exhibit was awarded four first, two second, and two third prizes. In addition to these, Mr. McKnight secured a silver medal for the best style of tins for holding extracted honey, and also a bronze medal for the best assortment of glass for the same purpose.—*Owen Sound Times.*

Honey Production at East Boldon.—A Bee-culture for Farmers.—Mr. H. Horner, of East Boldon, an ardent bee-master, had Bishop Sandford and other gentlemen on Saturday, October 5th, at an exposition of his wonderful success. He exhibited at his house the great superiority of wood hives, with moveable frames, over the old straw hive and sulphur pit. There were exhibited, too, 366 lbs. of honey, the produce this year of four hives, being something like twenty times the quantity by old methods. The Bishop narrated some of his observations upon the honey-bee in Tasmania, but marvelled at the extraordinary success shown by Mr. Horner, which seemed like the discovery of a profitable industry for farmers. This was the object Mr. Horner had in view, and no personal motive, for the fruits of his apiary he devoted to benevolent or religious purposes. The successful apiarian pointed out that in using the straw hive they had little or no knowledge of what the bees were doing within. They built the combs as they liked at a great loss of honey, as it took 20 lbs. of honey to make 1 lb. of comb. Again, the bees swarmed when they liked, and frequently were lost to the owner, and in taking the honey not only were the occupants of the hive suffocated with brimstone, but the combs were destroyed. All this was reversed by the new system. The bees could be inspected at pleasure, and the combs were built on the wood frames, which could be taken out when full. The honey was extracted without injury to the combs, and the frames replaced to be filled time after time without destroying the bees. By the new system, too, they could prevent or make swarms at pleasure. A great saving in the new system was that they furnished the bees with wax foundations, upon which they made the combs, at a cost of 2*s.* a pound, whilst, if the bees made their own wax, they would consume 20 lbs. of honey, costing 30*s.* On the old system the bees did as they liked, by the new system it was the other way about. Interesting details as to the work of a hive were given by Mr. Horner, who showed that they had their architects and labourers, nurses and policemen. All the bees knew exactly what they had to do, and did it. Votes of thanks to Mr. Horner, and the Bishop for presiding, were warmly accorded by those present.—*Newcastle Daily Leader.*

The Bear and the Man in Honey Tree.—'A neighbour of mine, in searching the woods for honey, slipped down into a great hollow tree, and there sunk into a lake of honey up to the breast, where, when he had stuck fast two days calling and crying out in vain for help, because nobody in the meanwhile came nigh that solitary place, at length, when he was out of all hope of life, he was strangely delivered by means of a great bear, which, coming hither about the same business as he had, and smelling the honey, stirred with his striving, climbed up to the top of the tree, and then began to lower himself down backwards into it. The man, bethinking himself, and knowing the worst was but death, which in that place he was sure of, beclept the bear fast with both hands about the loins, and withal made an outcry as loud as he could. The bear being thus suddenly frightened, what with the handling and what with the noise, made up again with all speed possible. The man held and the bear pulled, until, with main force, he had drawn him out of the mire; and then, being let go, away he trots, more afraid than hurt, leaving the smeared swain in joyful fear.'—Butler's *Feminine Monarchie.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 2nd page of Advertisements).*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

RE-LIQUEFYING HONEY.

[2334.] I have been a very close reader of both French and English bee literature for rather an extended period; and as far as I can remember the method of re-liquefying honey which I am about to describe has not hitherto been in print. With the plan now in use of simply steaming the honey to melt it, the product is sticky, somewhat like molasses; it has thickened in melting, notwithstanding the moist vapour in which it has been enveloped, and in some cases it has become cloudy and unfit for sale in glass jars, while previous to granulating it was passably clear. But this is not all, for honey that is thus passed to the Bain-Marie has lost part of that fragrant aroma and exquisite taste which it before possessed. These important qualities can be one and all retained almost, if not altogether, in their entirety, by a simple process; its extreme simplicity is, no doubt, one of the causes why it is not found out and used by those who have to re-liquefy honey. It consists in covering the honey about to be subject to water heat with half-an-inch of cold water. The crust and the whole of the acid portion, if any, on top of the granulated honey, should be removed previous to placing the cold water on. After melting there appears about the same quantity of water on top of the honey as when placed on first. When the honey is thoroughly melted, and has been allowed to cool down to a lukewarm condition, the water-covering should be poured off by partly inverting the vessel. It may be useful to state that the simple covering of water has no effect whatever on granulated honey that has already been melted without it. Honey that was originally clear, and has become thick and cloudy by being melted without the covering of water, will not alter if melted a second time with it.

As I have to supply liquid as well as granulated honey almost the whole year round, there being a constant demand for both, and as my honey granulates a few weeks after it is extracted, the cold-water covering process has rendered me good service. I first discovered its value last summer, when I had a large amount of granulated honey on hand of the previous season, part of which I remelted and thinned with water for feeding back to finish off several crates of sections, the completion of which was otherwise at a standstill through extra prolonged bad weather. Some of this honey was in

glass vessels; I made it a practice to cover the honey with a layer of water while melting to preserve its original qualities, that the sections might be better flavoured. But I noticed that the honey thus melted, which had been gathered during the extra dry summer of 1887, was equally liquid, transparent, and possibly better flavoured than the small amount of fresh honey which I possessed, gathered during so wet a season as that of last year. I therefore used it for bottling to increase my scanty supply of liquid honey. But it so happened that out of the several lots remelted for bottling I occasionally forgot to place the cold-water covering on some, and as a result they were unfit for placing in the glass jars, for the reasons previously stated. I therefore warmed them over again, previously adding the covering of water, but without effect. It was then that I seized the great importance of placing the cold water on the granulated honey previous to melting.

I use a common round potato steamer, the lower part for water, that which ships on top for the honey, in a vessel or vessels; but I invariably use several top parts one above the other, with the cover placed over the top one. These potato steamers, which are made in large quantities, extra cheap, for general use, are also excellent for uncapping pans, for those who have a large amount of cappings on extracting days. The top portion, with perforated bottom, retains the cappings, the honey drops into the lower one, and the cover when placed on keeps off insects.

Chemists prefer honey of the softer grades that will thicken, but not set hard at any time; when it does, I usually recommend them to re-liquefy it with a covering of water; and, if that is not found sufficient, to add a little water to it, in which case the honey should be thoroughly stirred with a stick while warm for at least five minutes, so that every particle of honey may come in contact with some of the water added.

On supplying my first fresh honey in glass jars at the commencement of this season, I explained that it was not re-liquefied honey the same as I had supplied the greater part of last year; when I was told to only send some as good as that, but a great deal more of it. I infer from that, that the honey had given satisfaction to the consumers, and I recommended the cold-water covering process to bee-keepers accordingly. I believe that honey so re-liquefied will remain a very long time before granulating again, but I have not been able to keep any back to test that point. If our friend the writer of 'Useful Hints' would add the plan of covering granulated honey with a layer of water before melting to his stock of good hints for yearly distribution, and to cause it to appear in one of the early numbers of the *B. B. J.* each year, I think it would be adopted when known and tried, and henceforth be generally used.—PETER BOIS.

POINTS IN JUDGING EXTRACTED HONEY.

(2312.)

[2335.] I am glad to see honey-judging brought forward again. The Rev. J. Lingen Seager read a paper on honey-judging in 1885, but there is little or no improvement on that point settled yet; and as to the number of marks given, I think that can easily be decided on, as that I consider a minor point, as it cannot matter whether you give fifty or a hundred, divided as Mr. E. J. Gibbins or Mr. Henry Chevenix proposes. I agree with them as to marks, but I think the point is this—Mr. E. J. Gibbins says, flavour, forty. Very well, now what shall be the flavour?—that is the rub, as each judge has his own taste, and unless you decide what you consider the best marketable flavour that suits the public at large, forty marks or a hundred will not decide which is the best honey for sale; that is, a honey that gets first prize at one place would be passed over at another; but if there is a standard flavour the honey that gets the most marks for the nearest approach to the standard flavour wins. Next comes the point of colour. This is another point to be decided, what is the best saleable colour? I am aware that different districts produce different colour, so they do flavour, but still there is a better sale for some colours than others; and if a colour is decided on, the nearest approach to the standard colour gets the most marks and wins. Unless there is a standard colour, judges will differ, so I consider that this winter it will be well for all readers that have a large quantity of honey to sell every year shall decide in the *B. B. J.* which colour and flavour they find sell the best, as those that have honey to sell ought to know better than anybody which is best; that is, bee-keepers that have two or three hundredweight to a ton to get rid of, as a gentleman acting as judge gives the prize to what he considers to be best—that is, what he likes best. Of course, that is quite right, and unless the gentleman acting as judge has a standard to work by honey-judging will be a failure, for so many men so many opinions. Next comes the aroma. This, I think, will help us to find which colour to choose, as most people don't like honey with too much aroma, and, as a rule, *very light* honey has very little flavour, or aroma; and again, *very dark* honey has, as a rule, a good flavour and too much aroma, so the colour between *very light* and *very dark* must be best, as the flavour, colour, and aroma are those which I find can be gathered in any district and sold readily. I have kept bees in Somerset, Dorset, and Devonshire, in Kent, and here in Wales, and find that a dark straw colour always sells better than very white or very dark. So I think, Mr. Editor, you might send out a ballot paper in your *Journal* for large bee-keepers to fill in as to their opinions, then the B.B.K.A. can form their rules.—H. JEANES, *Aberdare, S. Wales.*

P.S.—Uniformity of colour should be enforced.

THE IRISH BEE-KEEPERS' ASSOCIATION.

[2336.] I find in the last issue of the *B.B.J.* that the Hon. Sec. I.B.K.A. has taken exception to some remarks that fell from me in my last echo, not perhaps without reason, as no application was made to my knowledge to the Hon. Sec. from this quarter. I therefore hasten to withdraw the remark complained of; but still think if it be the desire of the I.B.K.A. to spread a knowledge of bee-keeping on humane and economic principles, they must, as far as their means will allow, take the initiative, for if they wait till an individual bee-keeper will venture to guarantee a full attendance, I fear we shall never see a bee-tent in our midst, yet I am sure if a love of *proper* bee-keeping were fostered in Ireland, it would be universally adopted. When I commenced two years ago there was not a bar-frame within ten miles of me, now there are five apiaries in a radius of six miles worked on that principle. If our leading daily or weekly papers of all shades of politics would give space for lectures and reports of *visits* to well-kept apiaries, it would, I am sure, be of great service.

In these suggestions and remarks I fear I am guilty of

unpardonable audacity, but in being taken to task for same, some one more qualified to speak will be drawn out.

On the subject of '*standard of merit*,' I will not venture an opinion, but state a fact. I have sold about 200 sections of spare honey this year, and when purchasers got a choice, they always selected the best *capped* and *filled*, making no objection to *dark* or *patched frames*.—T. B. O'Bryen, *Glencolumbkill, Oranmore, October 3rd.*

BOTTLES.—(2320).

[2337.] I am very glad to see 'Shropshire Bee-keeper' and others advocating the adoption of some sort of a 1-lb. bottle as a standard size, and a place where they may be had when wanted. Being a young bee-keeper, and a constant reader of the *Journal*, I have always noticed the recommendation to put honey up for sale in so attractive a form as possible, so I had determined to get as nice a looking bottle as possible, and with that end in view sent to Abbott Brothers for a sample box of bottles, and after due consideration selected their 'exhibition bottle' (as per catalogue), although very dear, 27*s.* 6*d.* per gross in place, and with a nice-looking label, was very attractive, and which we had intended it to be a sort of trade-mark. Often when I have gone into a grocer's shop, and asked if there was any honey wanted, I have received a prompt 'No,' but after showing my sample bottles, they have said, 'Oh, that is looking nice!' and have at once given me an order for a dozen, and in one case for three dozen, and have now an order for three dozen more from the same person, at the same time asking if he could have more if wanted. Now, to my great disappointment, when I ordered another lot of bottles to supply my orders, I was told they were run out of that sort, and did not intend to repeat the order. Then I sent to another bee-keeper for a bottle they had on their catalogue for 25*s.* 6*d.* a gross, and which I thought might do in place of the other. Back came a reply acknowledging the remittance, at the same time saying they were very sorry, but they were quite out of that sort, but offering to send a tie-over in place. Now, here I am in this dilemma, orders for honey in bottles the same as they had before, with a seeming impossibility to supply them. I, with 'Shropshire Bee-keeper' and others, would most strongly advocate the adoption of a screw top jar, to hold exactly one pound, without weighing or measuring, which saves a lot of time. In conclusion, could any of our bee-appliance dealers supply me with exactly same sort of honey jar and cap as Abbott Brothers advertise in their catalogue as 'exhibition jar,' No. 67, or inform me where I could get them? By so doing they would greatly oblige—Richard Williams, *Ladock, Granpound Road, Cornwall.*

REPORT FROM EAST KENT.

[2338.] The year 1889 cannot be considered a very favourable one, either for bees or honey, in this part of East Kent. The loss of stocks during the previous winter was unusually great, and the condition of those which had been carried through it successfully, much lower than usual, both as to bees and honey. Our spring blossoms, especially of cherries, opened in their usual beauty and abundance, but afforded very little honey, and faded much more rapidly than usual, and eventually yielded no crop of fruit, so that we were led to the conclusion, that, owing to the unfavourable state of the weather in the previous summer, the wood of our fruit trees had not ripened so well as usual. And this deficiency in the spring yield of honey, I consider to have been characteristic of the following seasons—summer and autumn—so that, on the whole, the yield of honey in the year 1889 has not been up to the average. In my own apiary of sixteen stocks I have not taken from any single hive more than 42 lbs. in sections and very little run honey, and the same report is given me by my brother apiarians in the neighbourhood.

Wasps have been unusually numerous, and more tormenting than ever to the bees, in some cases going so far as 'disestablishment' and 'disendowment,' killing the bees and plundering their stores.

I am glad to think that a more favourable account of the season can be given in other parts of the kingdom, but bee-keepers in East Kent, in casting up their accounts for this year, will hardly 'make both ends meet.' There is hope, however, for the future, for our stocks go into winter quarters with plenty of bees and honey.—*Hartlip Vicarage, near Sittingbourne.*

YORKSHIRE NOTES.

Single-walled Hives—Prevention of Swarming, &c., &c.

[2339.] As I have constantly written for some years strongly advocating single-walled ½-inch hives and natural swarming, perhaps you will kindly allow me space in the *B. B. J.* to inform your readers how much success they may expect from keeping bees on the above methods.

I wrote a letter in the *B. B. J.* in the spring, stating that I had wintered all my hives (nineteen) successfully. One was queenless, and I lost two first swarms and sold another stock after getting a swarm from it; so you may consider I started the season with sixteen hives, one of which was a skep. To take up as little of your space as possible I may state that I have taken about 1500 lbs. of comb and extracted honey from them—nearly an average of 100 lbs. per hive, and only had to give about four stone of sugar to feed up two or three light ones. I am now wintering twenty-one. I began the summer with a curious experience, as the only hive of the lot which had not been slowly fed for stimulative breeding swarmed first. Having more hives than I required, and not desiring increase, I thought I would work them all on the non-swarming (?) principle, having only tried it other years with a few hives.

Well, all went well until they had got from one to three section crates each nicely worked out and filled, but not sealed, and then they 'began.' You might return them, cut out queen-cells, eateh the queen as she came out with the swarm, or give them four or five empty frames with starters only (this only gives you some beautiful sheets of nothing but drone-comb); out they would come, either next day or very soon afterwards, and the worst was they seemed to have made a vow that if I would not let them swarm they would not work, and most of them hung about doing nothing for days in the very height of the season.

The end of July was near, and I had some 700 sections on, not fifty of which were fully sealed; so, on the 26th and 27th of July, I hived all swarms in fresh hives with eight sheets of foundation, and three partly finished crates on each. The result was I got every section but ten fully sealed and fit for market in a week. The ten were from one hive, into which I put a large swarm, with one partly finished crate and two new crates with full guides. They were a very large swarm, and were sealing all the outside combs in a week, besides filling the bottom of the hive.

I consider if I had worked them on my old swarming plan I should have had much larger results; certainly two or three hundred pounds more honey, besides an immense saving of labour.

One big lot I hived on eight combs of foundation and three crates to finish off; and although they hung under the floor-board, being so late in the season, I did not like to give them another crate, when they had so many sections to finish and the body-box to work out. As a consequence of this they built some large slabs of comb

in the open air, under the floor-board, and filled them with honey. This I have never seen before.

I should certainly never dream of using shallow frames for tiering for extracting, as I had hives which had ten tiered standard frames filled and sealed to within an inch of the bottom in less than a week; and if I had been using shallow frames I should have required two lots on, or else have been obliged to extract about every third day, when the honey would not have been ripe, and I should have had double the trouble. I suppose these shallow frames are one of the 'fads' which are constantly cropping up.

There is a good demand for honey this season, and I could have sold twice the quantity; and I have taken nothing less than 10*s.* per dozen for both sections and extracted in bottle wholesale, and 12*s.* in small quantities. I find it is the producers of some 50 to 100 lbs. who rush their honey into the market, and take almost anything for it, probably to dealers who advertise all the season, making a good profit on it and the 'send samples.'

Perhaps you will allow me to repeat what I have often written before—that I use ½-inch hives and winter on seven frames, only with summer quilts and a small entrance. My dummies on each side of the seven frames are only of ¼-inch wood, and the space between them and the hive sides is open to the roof, so that they practically only have ¼-inch wood on two sides. In eleven years I have never lost a stock in winter through cold, or not being able to get at their stores, and have only had, as I stated in the spring, two cases of dysentery—one from a leaky roof and the other with packing the roof full of dry hay. Results must speak for themselves, and unless you have a very weakly breed of bees, I think double walls are utterly useless.

Perhaps, as I only write once or at most twice a-year to the *B. B. J.*, you will kindly find space for my somewhat long letter; and if any of your readers wish for any information about my hives, perhaps you would kindly let me answer through the *Journal*, as I had so many letters to write in the spring from inquiring bee-keepers who had read my letter in the *Journal*: or, with your permission, I would send you a photo of my hive some time this winter for reproduction in the *B. B. J.*—Arthur J. H. Wood, *Bellwood, Ripon, Oct. 13th.*

THE PAST SEASON IN ESSEX.

[2340.] The past season has been a grand contrast to 1888 in this county, and has very much helped on the bee-keeping interest in this quarter. As you are no doubt aware, last year many bee-keepers lost a number of their stocks from a variety of causes; but this season has well rewarded them for any extra trouble taken with those stocks that survived, and they have now, many of them, enough strong colonies with plenty of stores for winter consumption. With respect to my own apiary I will only say that I have had a successful season, and have taken a large yield of first-class comb and extracted honey; also working many of my best stocks for swarming, they being in good demand this year at 15*s.* each swarm. This neighbourhood has been good for bee-keepers this year, for we have had an unusual large breadth of white clover in bloom for several weeks.

I think it will be interesting for you to know that many bee-keepers among the working men have done well with their bees this year. A few instances I will give you which came under my own observation. One man, by trade a wheelwright, busy all day with hard work in his business, but seeking recreation in the summer evenings among his seven hives of bees. He has been rewarded with over 300 lbs. of honey, some of which has been awarded first prize at local shows. Then we have a bootmaker, who has devoted some of his leisure hours when his day's work was done to extracting honey from a small number of hives kept in an equally small garden, but still giving very large results. He has had a most successful season, and has taken over 600 lbs. weight of honey, many of his sections being first-rate, in fact placed first in a keen competition at one of our large honey exhibitions. Another instance: a gentleman's coachman, who is not often sure when he can have an hour with his bees, has had the pleasure of showing me his honey account for the year, which is very encouraging. Starting the season with seven stocks, he has had four swarms and taken 112 lbs. of comb honey in well-finished sections, and 169 lbs. of extracted honey.

Many more instances could be mentioned where 100 lbs. of honey has been the result of one stock of bees well managed in a good district, and some of the working men bee-keepers have an average of 60 lbs. and over per hive, thus showing how well many have been paid for trouble taken this season. Besides, it is not only a source of profit, but a source of pleasure also. Many of them take a great interest in their apiaries.

In conclusion, I consider it my duty to mention one thing to you which I consider is of importance to all interested in bee-culture, and a great hindrance to bee-keeping. I mean the low price London dealers offer honey-producers for sections, and the high price they sell the same honey at. Now, if they sold the honey at a fair profit, so that the demand was large, we would not complain, for we would then endeavour to produce more, but a low price and slow demand do harm in many ways. When we are offered 7*s.* per dozen for 16 oz. sections, well filled and of good colour, free on rail, and find the same honey marked from 1*s.* 3*d.* to 1*s.* 6*d.* per section, we consider it is not fair to our honey-producers, and feel we ought to have a better price. Such are facts which I hope for the benefit of all who are interested in apiculture will speedily be improved.—W. Debnam, *Expert E.B.K.A., The Apiary, Primrose Hill, Chelmsford, Essex, October 14th.*

REPORT FROM NORTH NOTTS.

[2341.] Bees in this neighbourhood have all round done well during season just passed. Stocks which were strong in spring have, under good management, yielded an average of fifty or sixty pounds. Those not supered have swarmed again and again so that, after losing the larger half of their stocks last winter and spring, the bee-keepers around are looking forward to another season to put them on their feet again. A 'Parson's' only stock has given him 103 1-lb. sections well filled, about 20 half filled, 8 fully-sealed bars, and have still more left in body box than they can consume before next season. The owner of five frame-hives (spring count) has taken nearly 4 cwt. of honey, mainly extracted, his largest take being 120 lbs. extracted from one stock. A farm-labourer with twenty stocks has taken just over 1000 lbs., besides increasing stock. A working joiner has taken nearly 60 lbs. per hive from 18 stocks. These parties all live in separate parishes round Mansfield, and all are past their 'prenticeship. The cottagers' skeps have yielded about an average of 15 lbs. My best one stock yield was 165 lbs. extracted, all from sealed combs. This hive did not swarm. A stock from which the swarm flew away afterwards gathered a surplus of 120 lbs. extracted. Best lot of sections was 105 lbs. from a swarm. The parent stock of this gave me about 20 lbs. extracted. These stocks have all sufficient store to carry them well into next spring. Our bees are all blacks, though some of them have a dash of Italian blood in them. My apiary is situate a good mile from the heather on what is left of the Forest. All readers of *Robin Hood* will remember Sherwood Forest. Most seasons we get some heather honey, some seasons a fair quantity, but this year we

have to be content with half-filled sections and bars. The last day the bees did any real work was July 8th; the clover was then at its best, but the weather broke and it has been more or less bad ever since. I hear of a few stocks which were in the midst of the heather having gathered a little surplus; it could not be much I fancy, for I have driven some large skeps with strong populations quite on the edge of the heather, and the honey in them was nearly all clover. There was empty comb enough to hold heather honey had it been there for gathering.—A. Simpson.

PREVENTION OF BEES GETTING INTO ROOF OF HIVES.

[2342.] Some weeks since a correspondent complained that the section crates did not quite cover the frames, and the bees consequently got into the roof of his hive unless he placed slips of wood to prevent them. Frequently also one sees mention of having to prize the crates from the frames with a screwdriver, &c., before removing them, in consequence of their being fastened down with propolis. Will you allow me to suggest a simple device which I have found effectually to prevent both these difficulties? Take a felt quilt fully large for the hive-top, and cut out all the centre, leaving only a rim of about two inches wide. If this be laid on the frames under the crate it will do away with all chance of the bees getting up to the roof, and the slight space thus caused between the section crate and the frames has proved sufficient to prevent the former being struck down, and it lifts off without the slightest difficulty. I have used this for several years, not only when the crates are on, but at other times, allowing it to lie under the quilts, and have found nothing but advantages arise from the practice. I should state that the idea is not mine, but I got it from a price list of (I think) S. J. Baldwin's. —Edward Alexander, *East Dulwich, 14th Oct.*, 1889.

Echoes from the Hives.

Sunderland, October 3rd.—I was interested in seeing an 'Echo' from Burn Hill in last week's *Journal*. My bees have been there now for three successive seasons, and this year they have done very well, the best one having filled a 21-lb. super with magnificent honey; another did the same with a 10-lb. crate, and the other two stored a lot in the frames. I consider this yield exceedingly good, considering that the weather was anything but favourable. On looking into a driven stock yesterday, to which a Carniolan queen was introduced on August 28th, I was pleased to see lots of sealed brood. The bees have been very active bringing in pollen even during some of the very cold days we have had lately. This year I tried borage as bee-pasturage, but found they did not frequent it nearly so much as the *Limnanthes Douglasii*, which I consider the tip-top bee-plant.—Frank Gayner.

Honeycott, Hawes, North Yorkshire, October 8th.—To-day we are having a perfect hurricane, with a continual downpour of rain. Leaves are being blown from the trees in vast quantities, making a dismal scene, making us remember that winter will soon be here—at least, in this part; in fact we have had one view of it already. On the morning of the 25th September we had the hills all covered with snow. My bees have done fairly well this season, yielding an average of 40 lbs. per hive all round. This is not bad for a place where there is no clover, and so far north. Each hive has paid its rent, as our friend Mrs. Harrison puts it. Every stock is now ready for the approaching winter, strong in bees, in good hives, with plenty of sealed stores. —John Wharton.

Ticehurst, October 12th.—In reply to your request I beg to say this year's results have quite revived the drooping spirits of those who were able to keep their heads above the waters of last year. Unfortunately many of the smaller bee-keepers (skeppists) lost what few stocks weathered the storms when the bright spring weather set in. My experience, even with bar-framed hives, was such as I had never had before. Losses were heavy from various causes. Fortunately the colonies that survived were able to commence work early in the spring, and in June the honey came in fast, but when July set in it was all over. The honey gathered by my bees up to this time was of good flavour; afterwards, what little was gathered, had a strong, unpleasant taste, and I have been trying to find out what the bees collected from, and think it must have been from the African marigold, which was pretty plentiful in this neighbourhood. Honey thus flavoured seems to lose its unpleasantness after exposure to the atmosphere. To-day the weather has been bright and mild, and in the middle of the day the bees were bringing in pollen like springtime, and hope that we shall come out better next spring.—Geo. Hallam.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

O. A. Pease.—*Commotion among the Bees.*—Without being present we could not tell you why there was so violent a commotion, but we can cite instances when and why such take place at this season:—After bees have been confined to their hives for some time by bad weather; when a swarm (hunger) leaves a hive and enters other inhabited hives. This latter, we should think, was the case with yours. The queen of the swarm, if there is one, will usually be found on the ground dead in front of one of the hives.

E. T. Coote.—*Treatment of Colony in Skep.*—It is too late in the season to transfer from skep to frame-hive. This must be done about April or beginning of May. If, as you say, the skep weighs 30 lbs., they will not require any feeding. Bees must not be fed in winter, if short of stores, they must be fed up to the required weight in August or September, preferably the former.

R. Auld.—*Stocks with Drones, and abnormal Excitement at Entrance to Hive.*—We should most decidedly say that the colony is queenless, or has an infertile queen. Colonies at this time of the year having drones are certain to be in one condition or the other.

W. Stevens.—*Sugar for Syrup.*—Your grocer has entirely misinformed you with regard to the sample of sugars sent. The 'Demerara' is not Demerara at all, it is white granulated sugar, artificially coloured to represent same. What this colouring matter is, is a trade secret, and not knowing same we should most decidedly not give it to the bees. You can easily inform yourself as to the above statement by placing a pinch of this 'Demerara' on the tongue and sucking it for a couple of seconds, then remove it from your mouth, when it will be found perfectly white, or rather transparent, the colouring matter having been sucked off. The sample of loaf is very good, and can be made into syrup with the greatest confidence. We prefer the best 'granulated' large grain. This makes first-class soft candy if treated properly in the making.

D. P.—*Sample of Honey.*—We see no reason why your customer should be discontented with the honey furnished to him. It is very good, and we have failed, either by smell or taste, to detect the presence of carbolic acid in it.

W. Oliver.—*Queenlessness.*—The presence of so many drones so late in the season indicates that the bees have lost their queen, or they have a drone-laying one, or a fertile worker.

Raw Hand.—*Pollen.*—Please refer to our editorial on 'Pollen—Autumn Feeding.'

W. Smith.—1. *Queen-cells in queenless Stock.*—As you had *sealed* queen-cells, you may look upon the later ones as a further provision by the bees in case of mishap to the first. 2. *Unfertilized Queen.*—A virgin queen cannot mate *after* she has commenced egg-laying. 3. *Winter Breeding.*—This has been tried artificially, and is a failure. When breeding to any extent, bees must have frequent flights for cleansing purposes. A high artificial temperature emphasizes the necessity for such flights. 4. *Driven Bees, Feeding.*—It is now too late to give syrup in any quantity for storing. Dry sugar would be preferable. We agree with your opinion *re* Patents. We have not kept Dalmatians.

S. J. W.—*Carniolan Bees.*—It is possible that your bees may not show the marking very distinct, as not only do different stocks vary, but also the various bees in the same hive. Bear in mind that it is the working capacity that we want, not the markings, and you may find the worst marked the best workers.

Crust.—1. *No Sections.*—We have experienced the same peculiarity. Another season place a section frame (to hold six) at the back of the frames with a queen-excluder between. When the sections are well begun remove them to top of hive placing them in the centre of the section rack. 2. *Winter Passages.*—Do not disturb the bees now for these, but gently raise the quilt and lay two pieces of wood, say half an inch square, *across* the frames about two inches apart. Replace quilts. The tapes will not hurt so much as the disturbance necessary to remove them.

G. S. Coxwell.—*Bees returning from Swarm.*—We should expect any individual bee that returned to the parent stock, say twenty-four hours after swarming off, would be subjected to considerable inspection before being allowed to enter the parent hive. Your inference that the commencement of fighting will determine the period during which a bee can return is not to be fully relied upon, because if the bee returns with an empty honey bag and no pollen lumps, it will to a certainty be refused admission long prior to the time when a fully-laden bee would be looked upon as an intruder. We have noticed a continued accession to the numbers of an artificial swarm for a period of three to four days after making such swarm if we have left the parent stock on the old stand. Should you experiment as you propose, we shall be pleased to have an epitome of your deductions. May we suggest that you carefully note the state of the weather and also of the honey flow during your investigations, as these will certainly vary your results.

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Scudder, S. H. NOMENCLATOR ZOOLOGICUS.

Siebold, C. T. V. ANATOMY OF THE INVERTEBRATES. Trans. by W. J. Burnett. 1854.

Hunter, John, F.R.S. OBSERVATIONS ON BEES. Phil. Trans. 1792. Vol. LXXXII.

Arbuthnot, Dr. THE CONGRESS OF BEES. 1751.

Bellamy, D. NATURE DELINEATED. 1739.

Bevan, E. HINTS ON THE HISTORY AND MANAGEMENT OF BEES. Hereford, 1851.

Barrett, W. THE ECONOMIST.

Bradley, R., F.R.S. A GENERAL TREATISE OF HUSBANDRY AND GARDENING.

Butler, C. THE FEMININE MONARCHIE. 1609.
,, MONARCHIA FŒMININA. 1673.

Dimsdale, J. THE MODERN ART OF BREEDING BEES. 1740.

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Hartlib, Samuel. THE REFORMED COMMONWEALTH OF BEES.

Hyll, Thomas. PROFITABLE INSTRUCTION OF THE PERFIT ORDERING OF BEES. 1579.

Lawson, W. A NEW ORCHARD GARDEN.

Levett, John, Gent. THE ORDERING OF BEES. 1534.

Montague, Peregrine. THE FAMILY POCKET-BOOK. With new discovery of Bees. 1760.

Polhill, Nathaniel. ON MR. DEBRAW'S IMPROVEMENT IN THE CULTURE OF BEES. Phil. Trans. 1778. Vol. XLVIII.

De Re Rustica. 1770.

Ringsted, J. THE FARMER. 1800.

Rusden, Moses. A FURTHER DISCOVERY OF BEES. 1685.

Stevenson, Rev. W. THE GENTLEMAN GARDENER INSTRUCTED.

Thorley, Rev. John. MELISSOLOGIA. 1772.

NOTE.—Where the dates are given, only those Editions are required. It is therefore requested that no other edition be offered.

THE
BRITISH BEE JOURNAL

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Editorial, Notices, &c.

EMINENT BEE-KEEPERS.

No. 14.—THE HON. AND REV. H. BLIGH.

We have much pleasnre in presenting onr readers this week with a portrait and biographical sketch of one who has beeu more or less connected with the British Bee-keepers' Association from its foundation.

The Hon. and Rev. H. Bligh was born in London on the 10th of Jnne, 1834, and is the son of Edward, fifth Earl of Darnly, who died from the effects of an accident, cutting his toe with an axe while helping to fell a tree a few months after the birth of Mr. Bligh.

He was brought up at Cobham Hall in Kent, and went to school at Hampton, Worthing, and Rugby, matricnlated at Christ Church, Oxford, but was compelled to leave before his University course was completed owing to ill-health. Mr. Bligh's fondness for a country life and rural pursuits induced him to take to farming, and with this object he purchased a farm in Rotherfield, Sussex, and for five years was occnpied in agricultural pursnits. In his hands farming tnrned out a considerable success, and in consequence of the drainage and other improvements introduced the farm sold for more than double the original price. While occupied in farming, the cricket reputation of the family for some generations back was sustained by Mr. Bligh, who was a good wicket-keeper and steady bat. In 1858 Mr. Bligh married Emma, daughter of Colonel Armytage, and his health having improved in consequence of his leading a country life, he gave up farming, in 1861, with a view to devoting himself to the ministry of the Church. For this purpose he went to Salisbury Theological College, and took Holy Orders in 1863. After holding a curacy for three years, in 1866 he was appointed by Dr. Wilberforce, at that time Bishop of Oxford, to the living of Nettlebed, Oxfordshire, and who further promoted him to the offices of Diocesan Inspector of Schools and Rural Dean.

THE HON. AND REV. H. BLIGH.

It was while at Nettlebed that Mr. Bligh first became a bee-keeper in 1870, and commenced by following the instructions of the late Mr. Pagden, but soon became a firm disciple of Mr. Abbott, and in 1874 attended the first original small gathering of seven bee-keepers from which the British Bee-keepers' Association dates its existence. In this year he was appointed by the Bishop of Oxford to the important living of Abingdon, with a population of 7000.

Mr. Bligh took an active interest in bee-keeping, and served on the Committee until 1878, when his health again broke down, and he spent three years abroad for the benefit of his and Mrs. Bligh's health. He was a frequent contributor to the columns of the *B.B.J.*, and in 1876 he showed a beautiful collection of honey in supers, sections, and extracted. The greater part of the exhibit was in glass-sided supers, with grooved wooden corners, the invention of Mr. Abbott. There was no class open for these, but the merit of the exhibit was recognised by the Committee afterwards awarding Mr. Bligh a silver medal for it.

In 1879 Mr. Bligh so far regained his health that, in company with two friends and one guide only, he accomplished the ascent of Mont Blanc.

Since 1881 he has been Vicar of Hampton Hill, and in that year he lost his wife. He was also elected on the Committee of the B.B.K.A., of which he has been a member ever since, and has occupied the position of Vice-Chairman for the last three years. In 1883 he married again, Annie, daughter of the late Colonel G. Butler. Mrs. Bligh is an enthusiast in bee-keeping, and frequently attends the quarterly conversaziones. Mr. Bligh was the originator of the Economic Apiaries Competition, known as the 'Bligh Competition.' The object of these competitions was to show what could be done with our modern hives and improved methods. They were started in 1882, and continued for two seasons, Mr. Bligh contributing liberally towards the prizes. In the first competition there were seventeen candidates, of which only seven competed to the end, and the special Committee reported that this competition was most

beneficial to the cause of the Association by demonstrating that, with a fair knowledge of the art, bee-keeping is a most profitable pursuit. Mr. Bligh's idea that the hive of each candidate should be placed in the garden of some cottager was a good one, for it showed the cottager what could be done by proper management, and taught him a lesson in bee-keeping he would not easily forget. At the second competition the Association awarded 21*l.* in prizes, and it was carried out under the supervision of Mr. Bligh, who took a great deal of trouble, and devoted much time to it. This was also successful, for nine out of the thirty-three competitors who entered held on to the finish, and six secured the prizes. All recorded a large harvest, a valuable stock in hand, and a very handsome profit on the balance-sheet. All started with one swarm, and at the end of the second season one of the winners secured 140 lbs. of honey, and an increase of from one swarm to five well-established and well-provisioned stocks, and another 186 lbs. of honey and a very strong stock left for next season. Much praise is due to Mr. Bligh for instituting these competitions, and it is a pity that owing to the difficulty in managing them, the Committee were obliged to give them up. On the Committee he has been a most regular attendant, and is a member of the Examining Board.

Mr. Bligh is Secretary of the Association formed in the county in which he was born. The Middlesex Association had for Secretary Mr. Kenworthy, and Mr. Bligh joined him, and the two were joint Secretaries until Mr. Kenworthy's death. We hope Mr. Bligh may continue to enjoy good health, and be long spared to continue his usefulness to the cause of bee-keeping.

QUEEN-BEES, ROYAL JELLY, POISON-BAGS, &c.

Perhaps the following extract taken from *Gulliveriana, an Autobiography*, by the late George Gulliver, F.R.S., F.R.C.S.E., at one time Professor of Anatomy and Physiology to that college, may be of some interest to your readers. The book was printed in 1881, and is very scarce, only twenty-five copies were circulated among the author's friends:—

'At our Canterbury Natural History Society we had many curious and novel experiments on bees. The late Major Augustus Munn was our coryphæus in this department. He often brought to our meeting queen-bees, and pitted them together in pairs, when they would fight like gamecocks till one or other was killed; and this either in the day time or by lamp-light. His point was that the poison of the sting proved deadly by being applied to the breathing apertures of one of the combatants, and that the queen-bee could not sting like working bees. And truly so it was in many trials; for when a queen was put on the human flesh and irritated, she would protrude her sting and eject the poison, but could not, or at least did not, penetrate the skin. This fact was repeatedly shown on the bare and delicate hands of ladies, who, though frightened at first, felt no sort of harm, and were afterwards fully converted to Major Munn's opinion on this point. On microscopic examination we found the queen's sting larger, more curved, and somewhat blunter than that of the worker-bee, which was very straight and sharp. (April and October, 1873.)

'The Major, an enthusiastic and intelligent bee-keeper, gave us an ample supply of bees and their products for investigation. Of queen-bee jelly, there being nothing satisfactory in any book—physiological, chemical, or apiarian,—I undertook the examination, and plainly proved that it is an albumenoid substance, affording abundance of Mulder's protein, in a molecular base, therefore rather an animal secretion than a mere collection from plants; and so far from being a "pollen paste," as the excellent George Newport described it (*Trans. Lin. Soc.*, Nov. 18th, 1845), in the Hymenoptera, the composition is mainly as above described, with the addition of a few perfect and some disintegrated pollen-grains. Hence this bee-jelly is just such a nutrient matter as is best fitted for the growth and development of the insect-larva, like milk for young mammals, and the ingluvial secretion of certain birds for their nestlings. (July 1872 and October 1873.)

'In the muscular coat of the poison-bags of bees and wasps, a curious difference appeared. The coat in the queen of the wasp was found to be composed of the transversely-striped kind of muscle, but not so in the queen of the honey bee. The observations on this point were originally made by my son, who further observed the same difference between the workers of the two insects (October 1873.) And in relation to bee-keeping, we described the excellence of Petasites fragrans as early bee provender; and that this plant, at least at Canterbury, contrary to the descriptions in botanical books, is truly hermaphrodite.' (April 1873.)—W. H. H., *East Kent.*

'POMOLOGIST' AND 'PYROLOGIST.'

I find that some exception has been taken to the use made of these words in an article to which my signature was attached, and which appeared in the *Bee Journal* not long since. The word 'pomologist' in our language is undoubtedly used in a wider sense than simply that of a 'lover of apples;' just as the Latin word 'pomum,' from which the English word is in part derived, is said to signify fruit of any kind. On this point, however, 'doctors differ.' In Lewis and Short's Latin Dictionary—the dictionary, I believe, 'of the period'—'pomum' is described as 'fruit of any kind, apples, cherries, nuts, berries, figs, dates, &c.' But Conington, in his notes on the Vergilian line, Eclog. ii. 53:

'Addam cerea pruna, honos erit huic quoque pomo;'

[I will add yellow (or waxen) plums; to this fruit too shall there be honour];

remarks that 'pomum' includes 'all fruit except grapes, nuts, and according to some figs.' In the 'Imperial Dictionary' a 'pomologist' is defined as 'one who is versed in pomology; a cultivator of fruit trees.' As, however, science and knowledge advance, words are often, in course of time, restricted in meaning. They become more precise and specific. New words, too, are invented to express, perhaps, a portion of the meaning of the original word. The word 'meat,' for instance, formerly meant simply food in general, anything edible or fit for food. Thus in Genesis, i. 29, we read, 'Behold I have given you every herb, to you it shall be for meat.' A 'meat-offering' among the Jews consisted chiefly of fine flour. But meat now, as we all know, is confined simply to the flesh of animals used for food. As the culture of various kinds of fruit increases, it seems advisable to have a word which shall refer to some specific

form of fruit-growing. Let 'pomologist' mean, chiefly, a person interested in apples. 'Pyrologist' (*melius* 'pirologist') is a word that I have been for many years accustomed to apply to any person cultivating pears as distinct from apples or any other fruit. I am bound, however, to admit that I cannot find the word 'pyrologist' in the dictionary, except as a dabbler in fire, 'one versed in the doctrine of heat'; nor can I find 'pirologist' at all. But 'pirus,' sometimes written 'pyrus,' occurs in Vergil and other authors as a pear-tree, 'pirum,' in Horace, Vergil, Juvenal, and elsewhere, as a pear, so that the word 'pirologist' seems to me a useful addition to our language, and one that can be defended on etymological grounds.—E. Bartrum, D.D., *Wakes Colne Rectory, Essex.*

REVIEW OF GERMAN AND FRENCH BEE JOURNALS.

By J. Dennler, of Enzheim, Alsace-Lorraine.

(*a.*) *Correction.* In our review for the month of July we discussed, under *b*, an article by Pfarrer Mündel on the Bogenstülper. The measurements of this hive which the latter gives do not agree with those given by the inventor, Mr. Gravenhorst, and we take this opportunity of correcting them in order to prevent the appearance of this error in other Bee Journals.

According to the *Praktischer Imker*, by Gravenhorst, fourth edition, the dimensions of the Bogenstülper, given on page 42, are as follows:

Height inside, 46 c.m. = 19¼ inches (English).
Width „ 24 „ = 10 „
Length „ 58 „ = 24½ „

Multiplying $19\frac{1}{4} \times 10 \times 24\frac{1}{2}$, we obtain 4716 cubic inches. For the arching should be deducted

$16 \times 24\frac{1}{2}$ inches 392 „ „

so that a Bogenstülper with 16 frames, would not, as stated by Pfarrer Mündel, contain 2700 cubic inches, but .. 4324 c. ins. or 70¼ litres.

(*b.*) '*Der Elsass-Lothringische Bienenzüchter.*' *Editors Dennler and Zwilling.*

No. 8 contains an article on the new Bill to be brought in for the protection of bees, especially in regard to pursuing swarms. In accordance with this project it is proposed that a person may trespass on another person's property for the purpose of securing a swarm.

The same number also also contains Mr. Cowan's remedy against foul brood.

(*c.*) '*Vereinsblatt des Rheinisch. Westfälischen Vereins für Bienen- und Seidenzucht.*' *Editor, Mr. Koch.* No. 7.

Mr. H. Pflips, in answer to an inquiry as to whether heather honey causes dysentery, states that it does not do so. On the contrary, he affirms that experience in the Eifel, where the heather grows luxuriantly, proves this honey to be an excellent food for bees in the winter.

(*d.*) '*Leipziger Bienenzeitung.*' Part 7.

Mr. Clemens Koenig gives a learned description, continued through several numbers of this Journal, of the development, structure, and capabilities of the body of the bee. He also classifies flowers into Ornithophilæ, Malacophilæ, and Entomophilæ. In Hermann Müller's celebrated work, *The Fertilization of Flowers by Insects*, there is a full description of 388 species of plants that are proved, by the careful observation of many years, to be visited and fertilised by insects. This is about one-fifth of all the plants flowering in the open country in Germany. The honey bee alone visits 194 species, being half the number of the plants examined.

plants into separate groups, according to the colour of the flower, it was ascertained that the bee visits flowers that have a—

Greenish hue or tint	7	species.
Of a violet colour	14	„
„ blue „	19	„
„ orange „	19	„
„ purple „	23	„
„ red „	32	„
„ yellow „	39	„
„ white „	41	„
Together	194	„

These figures, however, are considerably altered, if we place yellow and orange-coloured flowers in one group, and those coloured blue, violet, and purple, in another group. The proportions will then be as follows:

Species visited by bees bearing greenish flowers, at 7
„ red „ 32
„ white „ 41
„ violet „ 56
„ yellow „ 58

(*e.*) *Bienenwirthschaftliches Centralblatt. Editor, Mr. Lehzen.*

Mr. Michael, of Auerbach, gives the following description of the wallpepper shrub (*Sedum*):—

1. Its first flowers appear in July and August, and the plant continues flowering for fully six weeks.

2. This shrub produces a large number of umbelliferous flowers, which develop by degrees and hardly suffer at all in wet weather, as they remain closed during the rain.

3. It grows very fast, producing flowers in a short time, and it spreads rapidly.

4. It is easily propagated.

5. When once it has taken root the bracts or leaves growing so closely together, there is no room for weeds to make their appearance.

6. The plant grows in any soil, and even in the poorest ground it takes root and thrives.

7. It is able to endure the hottest summer without withering, and continues to secrete honey abundantly all the time.

8. Not being suitable as food for cattle, it is not cut down by the haymaker.

9. On account of its beautiful red flowers and its thick foliage it is particularly suitable for borders of garden-beds, &c.

10. It is essential that it should be planted in a situation which is sunny and open; in a shady spot it does not flower.

In No. 15 of the same Journal Mr. Ilgen discusses the following question: 'Of what importance to large landowners is the meeting and exhibition of the Central Union of German bee-keepers, which is to take place in Stettin this year?' in reference to which he remarks,—'Taking into consideration that the large landowners in the German States, and especially in Prussia, are a great support to the Government, and also that they have much to lose in case of any revolutionary change brought about by the disaffected who are continually working for that purpose, it would be wise in them to encourage bee-keeping, and in so doing give remunerative employment to many, at the same time diverting their minds from the subversive theories now so prevalent.'

(*To be continued.*)

Bees in America.—It is estimated that in the United States there is a total of 3,000,000 colonies of bees, annually yielding 120,000,000 lbs. of honey. The value of this annual product, at an average price of 15 cents per lb., ranges from 3,000,000*l.* to 4,000,000*l.* in value, and the annual production of wax is calculated to be worth 200,000*l.*—*Leisure Hour.*

Foreign.

SOUTH AFRICA.

I have often thought of addressing you on the subject of apiculture as we know it in this benighted land, but my natural indolence, engendered no doubt by the frizzling heat, has been too much hitherto for resolutions formed in better moments. My immediate motive in writing to you is the fact that just recently I have tried to import Carniolan and Ligurian queens. My father and mother have lately been on a visit to the old country, and as I had long cherished the idea of importing Continental queens I thought it a first-rate opportunity of consummating my wishes. Unfortunately, Messrs. Neighbour & Sons, to whom application was made, happened to be just changing their business quarters, and consequently the queens were not fixed up in the best method. To cut the story short, I have received the Carniolan queen safely, with a small remnant of the nucleus; the Italians were all dead. Not having seen foreign bees before, my curiosity was much excited to see how they compared with our native bee, and the result is this. The queen (Carniolan) is much the same size—perhaps smaller, if anything, than the common Natal wild queen, the working bees nearly double the size of our workers. Where, oh where, however, was the much-vaunted beauty of the Carniolan? I looked in vain for the lovely yellow colour, gold bands, and other points of beauty, lauded by writers in the *Bee Journal*. The Carniolan queen is not in the same street with our queen; the latter I have always been an admirer of, and shall after this consider it hard to beat. The common worker also shares the lovely colour of the queen, but of course in a lesser degree. I have no doubt in my own mind (although it has yet to be proved) that the Carniolan will prove a better species than the native bee. In the first place the very large size of the former is a great advantage, as a larger quantity of honey can be collected at one trip; it is also, I judge, a much quieter bee to handle, and flies with a slow, stately motion, very different to the frantic darts of our workers, which are extremely vicious if not manipulated frequently. Its prolificness, of which much is written in the *Journal*, I know nothing about, but no doubt I shall be enlightened in a month or two. I mean to at once queen all my hives—twenty in number—and with Carniolans, and shall be much interested in the result. The pity will be that their produce will be hybrid; however, the hybrids may turn out better than either race. Should you care to hear the result of my attempts, I shall be glad to write you further on the subject. I have seen in the *Journal* that you have had a trying season last year, almost unprecedentedly so. We are singularly favoured in our climate. The trials and troubles of wintering are all unknown, double sides, quilts, feeding, &c., &c., not being in our ken. Bees breed throughout the whole year, although to a limited extent during our winter—save the mark! My hives are almost identically the same as Cowan's, but, curiously enough, entirely designed by a bee-keeping friend of mine, who is a good amateur carpenter, and who had never up to that time seen even an engraving of the modern English hive, and who had never read a work on bees, except Langstroth's book—an old edition. After he had made a few hives he resolved to make all his hives to the English standard frame, of which he had then learned about, and the result was Cowan's hive in every particular.

I have already trespassed too much on your indulgence, and must suspend my lucubrations until another occasion, that is, if you care to hear further. I may add, in conclusion, that if any of your readers desire to make the acquaintance of our species of the honey-bee that I shall be most happy to oblige them if they will take the trouble to correspond with me. I do not quite know how to put up a queen for travelling, but if a queen of English or any other species were sent me I would return one of my own in the same method.—W. H. Edmonds, *Durban*.

BEE-KEEPING IN EAST GRIQUALAND.

Thinking it might be of interest to your readers to hear of bee-keeping in this part of the world, I send the following account of my two years' experience in this place. When I first came up here, ten years ago, there were no bees in the district, but they gradually spread up from the south until they reached here. The first lot I managed to get hold of were in an old ant-hill; and weren't they savage? At last, after a great many stings, and with the help of a Kaffir boy, I got all the comb away, and in the evening, when they were in a cluster, got them into a box, with the help of a little smoke (had no smoker in those days, used brown paper rolled up), carried them up to the house in my arms, shook them out into a larger box, first cutting the queen's wings, as I had no frame-hive then, with starters or combs.

These bees did well, and with the assistance of a friend I got a frame-hive made and transferred them into it, with partial success only, though, as I found, on examining them a day or two after, we had neglected to place laths under the short combs, and in consequence they were cut through by their weight on the tape, and had sunk on to the bottom rail of the frame and tilted over to one side, these were put to rights, and they went ahead after that. Since then I have managed to procure bees from here and there, some out of holes in the river bank, some from the rocks. At present I have nine stocks, just come through the winter; as this is spring with us, September it is now, and the peaches and willows are in blossom.

All my nine stocks are in frame-hives, thanks to Cowan's *Bee-keeper's Guide*, I think it is called, which was lent me by a friend, and *The Bee-keeper's Adviser*, which I take in. The average take of honey is very low compared to what you get at home, between twenty-five pounds and thirty-five pounds per hive. Of course, I'm speaking of this particular district, but then we get a better price—one shilling per pound for extracted. Comb honey, as yet, has not been produced successfully, I don't think we get a rapid enough honey flow at any one time. Of the few people about here who keep bees, most keep them in boxes, which correspond to your skeps.

I know of but five others besides myself who keep them in frame-hives, and none take in the *B. B. J.* or *B. B. K. A.*, so I wish you would send me a few copies for distribution, to stir them up a bit.

This is a very windy country, and bee pasturage not over plentiful, as there is little else besides the Veldt, only oats, wheat, and maize are mostly cultivated, and they don't yield much honey. I have to grow buckwheat and borage, otherwise I doubt if the bees would pay for themselves, as everything here in the way of bee appliances comes so expensive. Bees can fly nearly all the year round with us, as the dry season is in winter, and though the nights are very cold then, the days are warm. I don't know what kind of genus our bee is, he seems to be a mixture, some are black, but the bulk are banded with dark yellow. I sent some home once, but as no notice was taken of them in the *B. B. J.*, I concluded they must have miscarried.

One can never manipulate a hive, without either smoke or carbolic cloth, and even then, they sometimes become almost unmanageable, so you can believe they are not the sweetest-tempered of bees, they work fairly well, and with good management repay their owner.—Regd. Tyrrell, *Rokstad, East Griqualand, Cape Colony, South Africa*.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements.)*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

IN THE HUT.

'I do not love thee, Doctor Fell,
The reason why I cannot tell;
But this alone I know full well,
I do not love thee, Doctor Fell.'

[2343.] This seems to be the spirit towards 'X-Tractor' which animates a recent critic. The only comment I will make on his remarks is, that the Huttites do not bear him similar ill-will; and I would also like to draw his attention to some remarks I made (*B. B. J.*, p. 561, 1887) in the Hut anent a previous outpouring from the pen of the same gentleman; I said: 'I take the opportunity of expressing my regret if anything has been said "In the Hut" which has caused pain or anger to any one; acerbity and ill-natured rancour are no part of the Huttites' creed. Good temper and mutual edification are our cardinal principles. I may say, however, that for the future such criticism as "the Hut" comes in for, and is allowed to appear in these columns, will pass unheeded and unanswered; so that any one can can have a shot at its inmates who likes. If no reply be returned, perhaps they may rest assured it is not for want of ammunition.'

We have now got our bees from the moors, and find the return of sections, shallow frames, and brood frames, give a yield of honey which pays five times over the expense of taking them a distance of ten miles. THE thing for the future in heather honey harvesting will be shallow frames containing half sheets of super foundation, drawn out at home before end of July, and substituted on going to the ling for sections, the latter when incomplete being extracted. For this purpose, in cases where not many hives are kept, I can recommend the miniature extractor, on the 'Little Wonder' principle, holding just one 1-lb. section; it extracts and leaves the comb nearly as dry as a bone, without any messiness or comb-breaking, even where the fastening was only on the top.

A good way to get bees to leave frames one wishes to to take away, full of honey or not, when closing in for winter, is to draw the rear frame a couple of inches back, and with a feather brush a few bees off; these run in alarm to the body of the hive, where there is soon a regular stampede; the feather may then be used to remove the few adhering bees. I find this does not cause so much excitement as taking the frame out and shaking off the bees; besides, only one frame need be exposed at a time.

When heather honey is strained, a good lot of it (being so stiff) remains mixed with comb in the sieve; this, in the vernacular of the Hut has been dubbed 'poucement,' and, in order that nothing be wasted, is used in the making of mead:—Supposing half the weight to be honey, eight parts water to one of honey are boiled in a copper till one-fourth is gone in vapour, it is well skimmed and passed through a strainer into an earthenware vessel, yeast is added. When fermented for three or four days, the wort is put into a rum or whisky cask, and allowed to remain a couple of months before being bottled off. This simple recipe is taken from an old number of the *B. B. J.* We take out many brood frames from the hives filled with heather honey, leaving six to eight as winter stores. A plumber's scraper is used to scrape off the honey down to the midrib, but care must be taken to avoid the central patch of cells whence brood has hatched out, in order not to contaminate the 'poucement.'

One of our fraternity suggests a simple method of having hives easily got ready for removal to moors or elsewhere. The hive has sides to the porch, and in place of (or on) the alighting-board a piece of perforated zinc is fastened in a slight wooden frame, which is fixed by two light hinges to floor-board. The frame is lifted (when the hive is to be removed) and fastened to the porch by a stud or button.

Yesterday (Sunday, October 13th) I noticed pollen being taken into a hive, and the massacre of the innocent drones has not yet commenced, so that perhaps we shall not have the complaint, as last year, of young, unfertilised queens to winter with.

Instead of disturbing and pulling a hive to pieces in order to cut winter passages in combs, it is advisable to put two strips of wood about the thickness of penholders across the tops of frames; there is thus a ready means of passage to front and back frames of stores, which are generally well filled by bees, and this is like a warm attic at every elevation of temperature. Observation of a frame hive, having a glass top, in the Hut, leads me to give advice in favour of a top passage over frames. Last year the only hive I lost was one without such top passage.

I forgot to say above what is done with the frames containing midribs from which honey has been scraped. They are put in empty hives, in a secluded part of the bee-garden, and the bees soon leave them scrupulously clean; next season they are put in the hives and new cells are built on the midrib, which is, of course, to begin with, well fastened to the frames. It is a mistake to suppose bees *draw out* foundation into cells to any great extent. The impress on the foundation gives little more than the *size* of the cell.

Bees this year have had very little sting in them; that is, the sting is the usual size, but the inclination to use it has not been so strong,—

'You never hear the bee complain,
Nor hear it weep, nor wail;
But if it wish it can unfold
A very painful tail.'

X-TRACTOR.

SECTION HONEY.

[2344.] There is as yet no official standard for judging honey, so each judge has to act according to his own opinions, and though I may tell 'Anxious' what I think are the most important points, it is quite possible that the judge under whom he exhibits may hold quite contrary opinions. Sections should certainly be filled quite up to the wood all round to be perfect, but it is seldom that such perfectly-finished sections are seen, even at our best shows. The bees seem to have a dislike or difficulty in building and filling the cells next the wood case. The top of the section is usually well attached, and the honey stored in the connecting cells, but down the sides, and more especially the bottom of the section, is more or less left open, so that bees can pass between the honey and the wood. Manufacturers and users of sections have for years been striving to get a section arranged so that the bees would be forced to completely fill the case even to these attachment cells and corners. The most popular style is that in which a sheet of wax foundation is fixed exactly in the centre of the section, completely arranging the cells into the very corners. Even this, however, is not a sure preventive of pop-holes, as these openings are generally called. If the bees are given a full sheet of foundation, and yet do not have proper conditions for

good workmanship, they will sometimes eat away a bit of the foundation to make these pop-holes. What these 'proper conditions' are is more than I can tell, though I have had the question under special study for some time.

If honey is being gathered plentifully the sections stored with it will stand a very good chance of being well finished, but if the honey is scarce then the sections won't be so good. Another cause which I have found to operate against getting good sections is the use of thin section crates, and my explanation for this is that more bees have to be accommodated in such thin crates to keep up the necessary amount of heat, and the comb is not closed up to the edges of the sections, so that these bees may find room. In one case which I experimented with there were three crates of sections on the hive, one above the other. Two of the crates had inch-thick sides, and the other had half-inch sides. The sections were all alike when put into the several crates, but when taken out full those crates with the thick sides gave much the best sections. Still, though these are steps in the right direction, there are governing influences which I do not yet know of or appreciate at their true value. Bees finish much better up to glass than to wood, but glass is more fragile and expensive, and more care has to be taken that the crate sides are thick and warm, or the glass will condense water, and the bees will refuse to touch it at all. In judging honey there are many other points to be taken into consideration besides mere finish. Perhaps the best code that I know of is that of Mr. J. H. Howard. For liquid honey he puts it as follows:—

(1) Marketable appearance	5	points.
(2) Colour	5	,,
(3) Consistency	5	,,
(4) Flavour	5	,,
	20	

If for comb honey put another heading, 'Finish,' from 5 to 10 points according to display, this latter heading to take in the general look of the exhibit and staging. This is a simple, yet most serviceable code, and since getting it I have abandoned the one I gave in a former number of *F. F. & F.*, as it was more cumbersome, though essentially on the same basis. The question of flavour is a most debatable one, as it is a moot point whether the palate of any person will discriminate after two or three samples have been passed over it. Again, the question of colour is an open one, because some districts have honey of a peculiar colour, which has won renown for itself. Rich amber clover honey is usually accepted as model honey for the early part of the year, and heather honey has attained a reputation all its own. Perhaps, when bee-keeping has advanced a few stages further, it may become common to make classes for hawthorn, apple, clover, &c. Anyhow it is very awkward at present.—DUNBAR (*Farm, Field, & Fireside*).

REPORT FROM WIGTON.

[2345.] At the end of the season, which has been one of the best on record, although cut short somewhat prematurely by the advent of early frosts, it may be interesting to note the results of one of our principal local bee-masters' experiences—Mr. John Hall, of Wigton, who kindly supplies me with the following notes. He commenced the season with seventeen stocks, which he had so carefully wintered that he lost none of them. In the spring he bought three more, one of which he sold, so that he began with nineteen hives. These produced 54 lbs. of comb honey in 1-lb. sections, and 1296 lbs. of extracted honey—a total of 1350 lbs., averaging a little over 70 lbs. for each hive, with plenty of natural stores left for the ensuing winter. The receipts for honey sold (one firm alone taking over 800 lbs. at wholesale price), amount at the very lowest computation to between 40*l.* and 50*l.*; besides the wax yielded from the cappings, about 9 lbs., valued at 13*s.* 6*d.* Against this there was but little expense, the first cost having been fully met in previous years. In addition to this, Mr. Hall's stock has increased to twenty-one colonies without counting one swarm which was lost. Mr. Hall says that had not the weather broken when the white clover was at its best, he might have done better, but he has no cause for grumbling, and I quite agree with him.—*The Wigton Advertiser.*

REPORT FROM KENT.

[2346.] I am afraid I cannot furnish you with any interesting information relative to my own bee-keeping experiences in the past season, owing to the fact that, when removing from my late residence, I left all my bees behind for my successor, and, unfortunately, was unable to start afresh until the beginning of June this year. The swarms which I then obtained were small, and only one yielded any surplus, viz., about 20 lbs.

As such is the case, I must seek for striking instances of success further afield; and I have great pleasure in informing you that reports from various parts of the county (Kent) testify to the past season as having been the most favourable for honey production yet recorded. This, I have no hesitation in saying, is attributable mainly to the abundant growth of white clover which was so noticeable throughout the summer. One part of the county has furnished an exception to the general prosperity, viz., the district lying between Tunbridge and Ashford. The loss of bees prior to the opening of spring was extremely great, and the recovery of those which narrowly escaped destruction was very slow, so that the season was all but over before they were in a condition to gather honey. The district around Hawkhurst has been a favoured one, the cottagers there being very successful. In the neighbouring parish of Lamberhurst a member—a cottager—informs me that he has averaged 60 lbs. per hive. Lydd, in Romney Marsh, after several disappointing seasons, has rewarded those who have patiently and hopefully held on. In the neighbourhood of Ashford our old friend 'Platelayer' has gathered an abundant harvest; and he writes me, 'I can say it has been the best year I have ever had.' Owing to a bad accident to his hand he has deferred sending an account of his apiary; this he promises I shall have, when I will send you an abstract of it. Bee-keeping in this district is in a very backward condition, and, as a rule, the bee-keepers are very loth to give up their evil practices.

Have you heard of 'Hippacea?' It is an Indian remedy for many of the ills that flesh is heir to; its chief virtue is that it arrests inflammation. I have applied it in the case of bee-stings, and in each one the relief has been almost instantaneous. I know of nothing like it.—J. GARRATT.

REPORT FROM MUCH HADHAM.

[2347.] I have not been able to extract any honey since July. My hives are as I left them then, I hope, safe, and some are very heavy, I know. For this reason I really can give no proper information to the *B.B.J.* as to my honey harvest, as I have not had time to take it. All I can say is that after a very trying and late spring swarming was very persistent at the beginning of June, and a wonderful flow of honey for about three weeks, latter part of June, specially the last week. The best hive I have had this season devoted to sections has given seventy-nine 2-lb. sections *all* beautifully filled and good weight. Several others have given 80 lbs. and 90 lbs. each, and some tiered up for extracting would have yielded enormously could I have taken it.

I am more than ever in favour of large hives, espe-

cially if one has not much time to devote to taking honey *during* the season. Some of my hives (Abbott's standard frames) have thirteen or fourteen frames below, and two or three *makeshift hives* of eight frames each above, *full* of honey perfectly sealed before I extract from them, which in a good season I can generally do *twice*, and then *always* leave the stock hive *untouched* and full of honey and bees for the winter.

If you can make use of the above for the paper, please do so.—M. C. Gayton.

REPORT FROM MID-LINCOLN.

[2348.] The honey harvest of 1889 in this neighbourhood has been very short; but the bees, as far as I have examined, are in a good condition for wintering. The honey flow only lasted four weeks, from the middle of June to middle of July, since when, with the exception of two hot days in August, it has been rain, rain, day after day, with several sharp frosts in the middle of September; although the bees have had occasional flights, and are quite busy to-day.

I commenced the season with five stocks, the queens of two were aged; yet having sold one swarm, I possess eight stocks for the winter, five of which have not had their brood nests disturbed at all during the season, and have been packed down since July, and a return of 200 lbs. of honey, all of which I could spare, has made 10*d.* per lb.

A farm labourer, whom I have assisted, has netted 120 lbs. of honey from three hives, which will pay the rent of his cottage and good garden.

Yet we have some of the old sulphur-pit school who will kill ther bees 'rather than let them pine to death,' as they say; but I think another good season or two will make them believe that 'them bee-keepers are right,' and lead them to make a step in the right direction.

Wasps have tronbled us only a short time this season, and seem to have been but few in number, which few the frosts and wet of September put a stop to their existence. I saw several in Yorkshire last week in a flying visit.—Mid-Lincoln.

Echoes from the Hives.

Bangor, October 4th.—A chemist living in the Isle of Anglesey drove two skeps and took 60 lbs. of honey. The driven bees were united, placed upon a stand in an empty hive (no comb) with a little syrup. The gentleman was surprised to find them in a fortnight's time dead. In his opinion they died from the effects of the smoke used in driving. Are there no Associations in North Wales to instruct such greed and barbarousness?—Cymry am Byth.

Syston, near Leicester.—If a 'Leicestershire Bee-keeper' will attend the annual meeting of the Association the last Saturday in January next, I will give him every information *re* shallow bodies, or if he likes to call upon me he can see them both for sale and in use.—W. P. Meadows.

Thurlestone Mills, near Kingsbridge, Devon, October 9th.—Referring to page 447, current number, 'Yorkshire Notes,' by Arthur J. H. Wood, Bellwood, Ripon, I would like to know how he manages to cover frame-ends, what shoulders are used, and how such hives are adopted for tiering?—John Foale.

Waltham, Grimsby, Lincolnshire.—I should much like to endorse what your correspondent, W. Debnam, writes in this issue, October 17th, of the *B.B.J.*, regarding the price of honey. If the London dealers would only sell so as to cause a very large demand, neither should I grumble: but most certainly they do not, and like all 'middle-men,' gain the lion's share of the profit. My own experience this year, though I had only three or four dozen sections to sell, was an offer from one of them (generally an advertiser for honey in this paper) of 6*s.* per dozen. I at once refused such terms, and for the reason above stated, viz., that he would get something like 1*s.* each for what he paid 6*d.* for. It is not good enough, and bee-keepers ought to beware of 'middle-men,' who have made so many other trades of little value to the producers. They and the Railway Companies are the ruin of small industries in England. I trust the representatives of the bee-keepers will make that clear to the Board of Trade. I have had an order for six sections withdrawn from London because the lady found the carriage would be heavy, and the safety not guaranteed. I could not blame her, but it is most annoying to have such a thing occur. In the end I sold my sections to a man in the north at 9*s.* per dozen. May I too say something about honey bottles? I am not one to advocate screw tops. They leak, and all that putting in cork or wax is so much time gone, which you never get paid for. Then, again, the shape of the tie-over bottle is, to my mind, so much prettier, and when candied the honey is more easily taken out, so before I was a bee-keeper I always bought the tie-over bottle; but whatever kind is used, it ought to weigh the full pound, which I am quite sure many do not.—Bee-Kay.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

J. Bint.—*Material used in Fumigator.*—The mixture used is Mr. Webster's trade secret. It is sold cheaply, in six-ounce bottles. (See advertising columns.)

O. B. T.—*Ocymum Sanctum.*—We do not know, neither can we find any description or account of, such a plant as Ocymum sanctum. There are only two true Basils, Ocymum basilicum and O. minimum—the first being Sweet Basil and the latter the Bush Basil. There are three other Ocymums, but these are not classed as Basils; neither of these is O. sanctum. There is the wild Basil (Calamentha clinopodium), but this is not a true Basil. We should think that the writer in question meant O. basilicum. We have quoted the highest authority in the foregoing. All the Basils are natives of the East Indies, which further strengthens the supposition that O. basilicum is meant.

Amateur Bee-keeper.—*Third-class Expert.*—You will obtain all the necessary information by applying to Mr. J. Huckle, King's Langley, Herts.

Bent.—1. *Keeping Bees near Bowling Green.*—If there is a fence of, say, six feet in height, between your garden and the green, the bees would not be any nuisance to the bowlers; but if there is not, they would. A lower fence than six feet would answer the purpose, if it is only a footpath that runs by the side of your garden, through which people are only occasionally passing, the fence need not extend more than four or five yards beyond the front of hives. 2. *Description of Bees.*—We prefer a cross between the English and Ligurian. 3. *Time to commence Bee-keeping.*—April.

G. Higgins.—1. *Variety of Bee.*—The specimen sent is of the ordinary English variety. 2. *Feeding.*—You ought to have finished syrup feeding by this time. Give them a large cake of soft candy over the frames, and cover up snugly.

R. de B. Saunderson.—*Condemned Bees.*—Condemned bees which have to build their combs, commencing so

late as the 1st inst., stand little chance of surviving the winter. Even if a few of these with queen do so, they rarely, or ever, make a good stock the next season. Condemned bees ought to be procured before the 1st of September, and placed upon fully-built combs, when, if rapidly fed up, they will make good stocks for the following season. 2. *Pollen.* Give them flour candy about February.

T. D. S.—*Hives for the Moors.*—Where bees are carried to the moors for heather honey, the simpler they are, and the more easy to handle, the better. In order to guard against extremes of temperature double-walled hives are to be preferred. Half inch inner and outer walls with an inch of cork-dust between will not be found clumsy, but still efficient, while the weight will be reasonable. If the hive has single walls, then the wood must be thicker, both for strength and to keep the bees comfortable. In very sheltered districts single-walled hives may succeed admirably, but we should much hesitate to try them for a winter on, say, the Yorkshire moors. Taking into account the great variations of climate in England as a result of locality no general and all-sufficient rule can be laid down for anything in which temperature is a prime factor.

G. S. C.—We are glad we have been able to assist you. May not aural communication form an important item?

DELTA.—*Honey.*—This appears to be principally raspberry; it is good and very light in colour.

J. G.—*Shallow Frames.*—These should be about five and a half or six inches deep. You are right in removing them one by one as full, but in a good honey flow you would nearly always be able to remove them by the rack full.

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AUTHOR OF 'HONEY AS FOOD,' 'HONEY AND ITS USES,' ETC.

Translated from the German, and Edited by

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Scudder, S. H. NOMENCLATOR ZOOLOGICUS.

Siebold, C. T. V. ANATOMY OF THE INVERTEBRATES. Trans. by W. J. BURNETT. 1854.

Hunter, John, F.R.S. OBSERVATIONS ON BEES. Phil. Trans. 1792. Vol. LXXXII.

Arbuthnot, Dr. THE CONGRESS OF BEES. 1751.

Bellamy, D. NATURE DELINEATED. 1739.

Bevan, E. HINTS ON THE HISTORY AND MANAGEMENT OF BEES. Hereford, 1851.

Barrett, W. THE ECONOMIST.

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Butler, C. THE FEMININE MONARCHIE. 1609.
,, MONARCHIA FŒMININA. 1673.

Dimsdale, J. THE MODERN ART OF BREEDING BEES. 1740.

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Hyll, Thomas. PROFITABLE INSTRUCTION OF THE PERFIT ORDERING OF BEES. 1579.

Lawson, W. A NEW ORCHARD GARDEN.

Levett, John, Gent. THE ORDERING OF BEES. 1534.

Montague, Peregrine. THE FAMILY POCKET-BOOK. With new discovery of Bees. 1760.

Polhill, Nathaniel. ON MR. DEBRAW'S IMPROVEMENT IN THE CULTURE OF BEES. Phil. Trans. 1778. Vol. XLVIII.

De Re Rustica. 1770.

Ringsted, J. THE FARMER. 1800.

Rusden, Moses. A FURTHER DISCOVERY OF BEES. 1685.

Stevenson, Rev. W. THE GENTLEMAN GARDENER INSTRUCTED.

Thorley, Rev. John. MELISSOLOGIA. 1772.

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Editorial, Notices, &c.

BRITISH BEE-KEEPERS' ASSOCIATION.

The monthly meeting of the Committee was held at 105 Jermyn Street on Wednesday, the 23rd instant. Present—T. W. Cowan (in the chair), Hon. and Rev. H. Bligh, Rev. J. L. Seager, Captain Bush, R.N., J. Garratt, and Dr. Rayner, W. Lees McClure, Rev. W. E. Burkitt, *ex officio*, together with the Secretary. Letters were read from the Treasurer and Dr. Bartrum, regretting their inability to be present.

The minutes of the last meeting were read and confirmed.

The Secretary reported that the Kent Association had contributed 1*l.* 1*s.* and the Notts Association 10*s.* 6*d.* to the Mansion House fund for conducting the case of objectors to the Railway Rates at the inquiry now being held by the Board of Trade.

The prize schedule for the Royal Agricultural Show of 1890 was further considered, and, having been amended, it was resolved that the same be brought up for confirmation at the next meeting. Mr. Garratt reported that the Council of the Bath and West of England Agricultural Society would meet in the course of the next few days, when a reply would be given to the proposal for holding an exhibition of bees, hives, and honey at Rochester next year.

It was resolved to communicate further with the Bath and West of England Agricultural Society with the view to the establishment of a Bee Department at their annual exhibitions on lines similar to those adopted by the Royal Agricultural Society. Questions respecting the rules of the Plymouth Exhibition, and also in regard to examinations, were referred to the Exhibitions and Educational sub-committees for consideration prior to the next meeting.

The Autumn Quarterly Conversazione was also held on Wednesday, October 23rd, at 6 p.m., in the offices of the Royal Society for the Prevention of Cruelty to Animals, 105 Jermyn Street, St. James's, when among the large audience of ladies and gentlemen present were the Hon. and Rev. Henry Bligh, Mrs. Bligh, Mr. Grimshaw, Mr. Blow, Mr. Sambels, Mr. Garratt, Mr. White, Mr. Webster, Mr. Lyon, Mr. Somerville, Mr. Soar, Mr. Graham, and others.

Mr. Graham having been voted to the chair, opened the proceedings, and in a few introductory remarks pointed out the desirability of discussing subjects which bore on practical bee-keeping. He knew that Mr. Grimshaw had prepared a scientific paper to read, but he thought it better, first of all, that they should listen to any hints or observations on practical work which probably some of the members present might wish to place before the meeting.

Mr. Sambels said, in the absence of any other subject of greater importance, he would like to refer to one or two matters which had come within his recent experience. As most present were aware, the mortality among bees during last winter was very great, and he wished to explain, for the purpose of hearing a discussion thereon, how he had saved the bees in skeps belonging to some cottagers, the occupants of which, but for timely aid, would certainly not have lived out the winter. Early in January his attention was called to the condition of their hives by some cottagers. He found in some cases a couple of skeps near each other in a very weak state. He immediately took the weakest of these and inverted it, placing the other over the top of it, and allowed them both to remain in that position. All the bees went up to the top, and doubtless soon settled the question as to which queen should survive. They also carried the food from the inverted hive up into the top one, as, during the next fine spell of weather, while bees were flying, on examination being made, the inverted skep was removed and found to be empty of stores and bees. In this way he believed several stocks had been saved by a conservation of bee life and energy, where otherwise all must have perished. His hearers would have read elsewhere what he had succeeded in doing by inverting a stock of bees in a skep during the honey harvest, results which he felt certain were impossible had the skep been supered in the ordinary way, and allowed to work through the ordinary three-inch bung-hole. He wished skep-makers would make bung-holes in the top of skeps larger for the purpose of supering.

Another matter he wished to refer to—and if he had anticipated addressing the audience that evening he would have provided himself with samples wherewith to illustrate his remarks,—last winter, instead of using chaff trays on the top of his bar frame-hives he had adopted thick sheets of felt of a kind recommended by his friend, Mr. Grimshaw. The material was about an inch thick, and was used by engineers for coating the outsides of the boilers of steam-engines. They called it 'lagging felt,' and a sheet costing 1*s.* would make two quilts. There was no doubt of the great warmth resulting from the employment of that covering, because, being so pliable, it would fit down into all the crevices and irregularities. To use Mr. Grimshaw's expressive phrase, it 'paned' down so nicely. The sheets require cutting to the proper size, which he had easily manipulated with a wood 'straight-edge' and a sharp knife; a pair of scissors were not a success. This winter he had turned this material to further account by cutting a sheet of it slightly

larger than the dummy and fastening to one side of it a sheet of thin deal, the kind used for the backing of common picture frames. He allowed the felt to be a quarter inch larger all round than the thin deal support, and he then found the felt pressed into its place outside the dummy a perfect fit, effectually preventing all draughts.

H would give another hint which might be valuable to some who had not thought of it. Nothing that he had tried had equalled the three-cornered scraper for removing propolis. He did not buy a plumber's scraper, sold at 1*s.* 6*d.*, because it was not necessary to go to such an outlay. Every season he threw away some thousands of section knives from old reaping machines. He took one of these, drilled a screw hole in the centre of it, turned a wood handle and fastened the section to it by an ordinary wood screw, and had an efficient scraper for a few pence —one that would not only scrape off all propolis from the frames, but, if sharpened up keen by the aid of a hand saw file, would even remove soiled finger-marks from sections.

Mr. Garratt asked what advantage was gained by uniting the skeps, because no additional quantity of food was given. If there was sufficient food in the hives when put together, why should there not be sufficient food when they were in their usual position? Probably the answer was that extra heat would be generated, resulting in less consumption of food.

Mr. Sambels assented, believing that the two lots together consumed 50 per cent less food, although he could not undertake to prove that statement.

Mr. Webster said the main reason of success was that, with the united hives, there was only one lot of brood to rear instead of two.

At this juncture the Chairman exhibited a beautiful crystal scarf pin, engraved in intaglio and coloured in facsimile of a Ligurian queen. This work of art, the production of Messrs. Read & Son, 77 Jermyn Street, and the property of Mr. F. Lyon, was handed round for inspection, and much admired.

Resuming, Mr. Garratt said he thought the plan of inverting skeps was a most practical and efficient method of managing bees; and he recommended that public attention should be more prominently drawn to it. Some years ago he had referred to the subject, and stated the good results which had followed his adoption of the system. Inverting the hive the whole of the mouth thereof afforded a capital surface for supering, and the heat of the entire bees in the hive warmed the supers. Neglect of a proper degree of warmth was generally the cause of cottagers' failures. He advocated that plan to cottagers who used skeps, especially because it involved no additional expense.

Mr. Webster said he had tried a system of inversion for dividing lots in three instances during the season just passed, but he could not recommend it, a deal of time being thus expended in forming two colonies out of one. He inverted a skep, fitted a bead round the top edge, and placed a frame-hive with foundation on top of it. The bees soon went up into the foundations, after which the hives were separated and became two stocks. He had been very successful by that method, and had got six frames fully built out, with sufficient honey to keep the bees during the latter part of the season. Of course, he had obtained nothing while the process of transfer was proceeding. He thought scrapers were too much used; he liked to see a lot of burr combs on the top of the frames in winter.

Mr. Blow considered Mr. Webster's plan of dividing a skep into two colonies a clumsy one. He had worked for years on a system involving similar features. Having a large quantity of skeps, and in order to prevent swarming, which was troublesome, he took a bar-frame hive and fitted a skep on top of it, thereby inducing the bees to work down. There were fewer difficulties by that method, which used to be recommended in the early days of the Association.

Mr. Soar fully endorsed Mr. Blow's remarks, having made three strong stocks in just the same manner as explained by that gentleman.

Mr. Blow said he very often left the skeps on top of the bar-frame hives during the winter, not taking the trouble to remove them.

Mr. White maintained at some length, illustrating his remarks from time to time, that the direction of the combs depended entirely on the pitch of the floor-board. He also described the form of scraper he used, which was an adaptation of that brought out by Mr. Grimshaw, and resembled what was called a cold chisel. With regard to inversion he quite agreed that it was desirable to teach cottagers more on the subject. He had adopted it with excellent results.

Mr. Webster said he knew that the direction of the combs did not depend on the pitch of the floor-board. On one occasion he removed some bees out of Lambourn church roof, and he found the combs hanging crosswise, and in every direction that could be imagined.

Mr. White thought it was only natural that the bees should build crosswise to the roof of the church; he could not imagine them building between the rafters. He believed that the combs which were built in various directions would always be found to have a tendency towards the lowest part of the floor-board.

Mr. Sambels said he was afraid it would not do to insist that bees under the conditions named by Mr. White would always build their combs as he had suggested. He (the speaker) had very frequently seen combs built in all kinds of zig-zag fashion; and he did not believe any rule in the matter could be laid down. It was a remarkable circumstance in regard to swarms in skeps that the first swarm, as a rule, would take possession of the centre of a skep, while casts would keep close to the side. He had repeatedly noticed this.

Mr. Webster assented, giving as the reason that a first swarm, having a fertilised queen, always commenced to make worker comb, which they placed in the centre of the hive. In the case of casts a virgin queen required drone comb, which was always placed in the side of the skep.

At this point the Chairman called on Mr. Grimshaw to read his paper, entitled—

Heredity in Bees.

Are we to assume that the most social of all insects has developed into its present high condition from ancestors who have had less and less of the social instinct in them as we go back into the remote past, age by age, until we find a seemingly perfect solitary honey-bee, queen and drone, male and female, themselves workers, able to gather their own food, as in the case of the queen humble-bee, able to secrete wax and rear its young until the progeny, becoming numerous, take these duties upon themselves? If so, in vast spaces of time, the necessity of honey-gathering and wax-secreting, the part of the queen being removed, the organs and glands used for this purpose would by disuse become aborted and atrophied, the tongue would get shorter by degrees until it became, as we find it to-day, too short altogether for the purpose of gathering nectar from flowers, and the wax-secreting glands would disappear entirely, the pollen-baskets would also for the same reason go by the board, or remain only in a rudimentary form. The reproductive organs would remain, of course, as perfect as we find them, and by the whole energies of the queen being devoted to egg-laying, the ovaries would be developed into the vast egg-producing organs we know them to be. On the part of the worker (a female bee), the necessity for its participation in the re-peopling of the hive being removed, the requisite organs would at the same rate become atrophied, as we find them, whilst

the constant and increased use of other parts (the tongue and the pollen-baskets), would be gradually developed under the marvellous loss of compensation into what we see they are in the present stage of their development. The fact of certain varieties of *Apis mellifica* having longer tongues than others would support the suggestion that our bees are not yet on the apex of perfection as regards the development of the parts necessary for nectar gathering. Other varietal differences strengthen the assumption.

The development of the social idea always brings with it specialisation of parts, devotion to special labour, and the division of work. Thus we find the probational nursing period, and its following honey and pollen gathering life, with the divisions of labour into cell-building, wax-secreting, water-carrying, sentinel works, and so on.

Now the question forces itself upon us, how and by what means are all these specialisations handed down to the generations. The queen *per se* has only the re-peopling instinct to transmit, which she does in the worker and drone eggs, the worker bee having certainly as strong desire to keep up the strength of the huge colony as the queen can have, perhaps more so; but she, the queen, inherits nothing from her parents beyond the faculty of depositing eggs by the thousand. She inherits no instinct for mutual defence, the necessity of seeking food, building cells, &c., neither can she transmit these instincts, for neither the queen nor the drone have the power of handing down to posterity something they do not possess. The truly wondrous developments of various instincts in the worker bee are not possessed by the parent bees; and as these developments must have extended over enormous periods of time, in order, little by little, by constant use, to reach their present pitch of perfection, these minute advances of the worker must have been perpetuated by SOME means for the benefit of her successors in the hives of the future.

The queen-bee is more the daughter of her nurses than the daughter of her mother, for, we know, it is only by the changed treatment of a worker egg by the worker bees, that she becomes a queen at all. The queen *can only lay queen eggs and drone eggs*, no worker egg, only perfect male or female ova; it is the treatment the female eggs receive at the hands of the workers which decides the future line of usefulness in the female progeny. How, then, can any characteristics developed in the worker be transmitted other than by the food fed to the brood out of the digestive organs of the worker bee herself? Food, perhaps, contaminated by germs of foul brood by having passed through the workers' own diseased system, but food as much characteristic of the nurse-bee as is the milk of a nurse mother—a foster-mother—amongst the mammalia.

We have then only this dilemma to face:—Peculiarities of the worker bee not possessed by either of its parents must be handed down somehow by itself; and there seems to be no way out of the difficuty other than by assuming she does this in the manner I suggest. If you insist that these are latent in the worker egg as soon as laid, quite irrespective of any hereditary tendency handed down in the worker brood food, then I contend that even in this case the queen mother inherited these tendencies in the so-called royal jelly, on which she fed when in the grub state, but still a brood food, which had passed through the system of workers. The same argument applies also to inheritance through the drone.

Ribot tells us ('Heredity') that 'in animals the transmission of individual character is a fact so common as scarcely to need illustration,' and Darwin supports him by instancing that 'if a horse be trained to certain paces, the colt inherits similar movements; the dog becomes intelligent from associating with man; the retriever is taught to fetch and carry; and these mental endowments and bodily powers are all inherited.' He also lays down the axiom that 'variability results generally from changed conditions acting during successive generations.' Therefore I hold that our worker bee has gradually developed its social instincts and the well-known distinctive peculiarities it possesses, through multitudes of generations adapting themselves to changed conditions of life, inheriting and handing down distinct instincts where fully developed, but where only partially developed, handing down a tendency in a given direction.

It may be doubted that brood food (the sustenance of a foster-mother) is capable of transmitting such tendencies. I think we only need to reflect a short time and we shall be prepared to admit the theory of heredity by generations of specialised food. Darwin assists us again by telling us 'Each living creature must be looked upon as a microcosm, a little universe, formed of a host of self-propagating organisms, inconceivably minute, and as numerous as the stars in heaven. These organic units, besides having the power, as is generally admitted, of growing by self-division, throw off free and minute atoms of their contents—that is, gemmules . . . . . their development depends on their union with other nascent cells or units, and they are capable of transmission in a dormant state to successive generations.'

Such gemmules are congregated in vast masses—vast by comparison—and these *vast* masses are themselves so minute that I have heard Dr. Dallinger (that prince of microscopists) say ten millions of them might be contained in a box having the diameter of a human hair. If you rub the seeds of the vanilla plant between the forefinger and thumb, you will find them so minute that they become firmly fixed in the beautiful furrows of the skin, yet each of these exceedingly small seeds is composed of a mass of separate cells, having the prepotency of growth and self-division, having the power hidden in itself of reproducing a perfect plant. Thus, 'number and size are only relative difficulties, the eggs or seeds produced by certain animals or plants are so numerous that they cannot be grasped by the intellect' (Darwin); and if 'organic units during each stage of development throw off gemmules, which multiplying, are transmitted to the offspring,' is it an unfair assumption that such gemmules are handed on ont of the system of the nurse-bee into the brood of the queen and worker-bee not by means of the mouth of the brood, and thus running the risk of active chemical change, but into the system of the grub, which seems to absorb the surrounding brood-food by every pore, so to speak. Let us come to the conclusion of the whole matter. The points of the worker are inherited, and they are also handed down; she cannot very well inherit from ancestors neither of which possess such points, neither can she hand them forward to the generations in the ordinary way. We then have to find some extraordinary manner of accomplishing this task, of overcoming what appears to be an insuperable difficulty.

I hope I have given you sufficient reason for coming to the conclusion that countless generations of foster-mothers have been the real highways of heredity in our bees, that as the milk-like secretions of the nurse-bee are fed alike to drone, queen, and worker brood, it is by this means her wonderful adaptations in structure, &c., are perpetuated.

We reserve the discussion on Mr. Grimshaw's paper for our next issue.

AN ASSOCIATION FOR BERWICKSHIRE.

We are informed that steps are being taken to form an Association in Berwickshire. We wish our northern friends every success in the undertaking. We hope to hear that similar action is being taken by some of the northern shires of England.

'TO WHAT IS THE PECULIAR EXCELLENCE OF BORGUE HONEY DUE?'

Borgue Academy, Kirkcudbright, 9th October, 1889.

SIR,—I send you the award of the judges in the prize essay competition, and also the prize essay, for publication. The winner of the prize of one guinea, offered by 'A. M'N., Greenock,' for the best answer to the query, 'To what is the peculiar excellence of Borgue honey due?' is David Leith, Borgue Village.—I am, &c.,

JOHN DUNLOP.

AWARD OF JUDGES.

We, the undersigned, being appointed judges to determine which essay has best answered the question, 'To what is the peculiar excellence of Borgue honey due?' hereby give our decision in favour of the one written in smallest hand, and to which we have attached the signature 'Alpha.'

R. SANDERS, The Manse, Tundergarth.
J. M. M'PHEDRAN, Craigbet.

2nd October, 1889.

ESSAY.

TO WHAT IS THE PECULIAR EXCELLENCE OF BORGUE HONEY DUE?

In endeavouring to solve the above question, the first thing that comes under observation is naturally the bees. Seeing the domestic bees are nearly all alike, I at once come to the conclusion that we must look for the answer elsewhere; but, no doubt, a healthy stock of bees is necessary to produce a good crop of honey. The next point likely to have a bearing on the subject is the management. I believe, however, that is not the reason, as the Borgue bee-keepers cannot claim credit for being the best of hands at it, though they have improved greatly within the last few years, thanks to our local Flower Show. The next thing is food or pasture. What is the principal plant from which the main crop of honey is gathered in Borgue? I unhesitatingly answer—White clover. Now, the question that suggests itself is, Does the white clover of Borgue produce better honey than the clover of the surrounding districts? I believe it does. In treating on pasturage plants, Loudon says: 'Notwithstanding all that has been said of the superiority of lucien to clover, and the excellence of sainfoin and other plants of the pea tribe, yet the red clover for mowing, and the white variety for pasturage, are, and probably ever will be, found to excel all other plants in these respects. So congenial is some soil to clover, that the strewing of any stimulant on the ground will call into action seeds which would appear to have lain dormant for ages; at least this appears the most obvious way of accounting for the well-known appearance of white clover in such cases. The climate most suitable for clover is one neither very hot nor very cold, but dry.' Now, I believe the soil of Borgue is pre-eminently suited to the production of white clover in its very best form for producing good honey. The geological formation of Borgue is composed of a very thin stratum of whinstone and soft slate set on edge, running north from the shore through the entire length of the parish, and standing up in numerous knowes all over the land. There is also a great quantity of fine old crofts, the two combined forming a sixth part of the acreage of the parish, without any subsoil except broken rock and slate, so congenial to the growth of the clovers. And it is evident that these old crofts produce in great abundance white clover of a greater age than is to be found on fine cultivated land. The roots of the plant get down into the ground, and in between the strata of stone and slate. Any person working in our quarries may see the roots turn out from between the strata like webs of muslin. It is a well-known fact that the older any plant gets the more pungent it is to the taste, and I believe this is the source of the peculiar sharp smack which Borgue honey possesses over all others. Yea, more, I believe it is to the same cause that Borgue owes her well-known fame for producing good beef as well as honey. Some may ask, What has beef to do with honey? I believe wherever you get the one in perfection you will be almost sure to get the other, proof of which you will find in the sacred volume: 'The Lord told Moses to speak unto the children of Israel, and say unto them that He would bring them up out of Egypt into a good land, a land flowing with milk and honey.' This promise is repeated several times in the Book of Exodus, the one always mentioned with the other. Thus, I believe, the age of the plants on our old pastures and knowes gives a blend to our honey which you will not find anywhere else in the surrounding districts. I think some one said in the late controversy in the *Kirkcudbrightshire Advertiser* that the conditions were the same on either side of us, but such is not the case. On the west, as you approach the Fleet, you come on a formation of unstratified rocks, such as granite and porphyry, and you find the dwarf heather making its appearance where in Borgue you would get white clover. Then, again, on the east side of the Dee you approach the iron and sandstone as seen on the shores of Mullock, Burnfoot, and Port Mary, continuing along the shores of Berwick to Auchencairn, when you again come on the granite, all of which is not so well suited to the production of clover. On the north of the parish you lose the broken stratified knowes standing up in the fields with their warm bed of rocky subsoil, and come on subsoil colder and not so congenial to the clovers. As to the ancient fame of Borgue honey, almost every one who has written anything on the district speaks of it—see Mr. M'Taggart in his 'Gallovidian Encyclopedia,' and others. A few old people still living will remember the late Alexander Halliday, of the Ring Cleuch, in Twynholm—a man linking us back with the eighteenth century, a great worthy of his time, possessed of powers of observation of no mean order. He fully recognised the superiority of the white clover of Borgue more than fifty years ago, being one of the most extensive bee-keepers in Galloway. He used to bring down his top swarms into Borgue, and set them in the gardens of the cottagers and in the odd corners of the fields to catch the Borgue honey, which he used to come round and lift in the autumn. It was a great treat to have a 'crack' with this old worthy on these occasions. Then I believe, so long as the old pastures of Borgue remain to produce their rich carpets of incomparable white clover, and her bonnie knowes bloom in the summer sun, so long will her produce stand in a first place in the markets of the kingdom, and her honey be famed far and wide as in days of yore.—*Kirkcudbrightshire Advertiser.*

THE HOUNDS AMONG THE BEES.—On Saturday we had the foxhounds in our village, and they ran poor Reynard into a garden, and being hard pressed he made an attempt to take some wire fencing, but failed, so he took to a wall and thence on to the top of a stable, the poor animal sitting trembling; but the master of the hounds lashed him off the stable into the garden, and then they upset a bar-frame hive of bees, but as it happened to be a folding front it went inwards and closed the bees in, or we would have heard a little more music. At last the mistress of the bees made her appearance, and demanded ten shillings damages: the master of the hounds put his hand into his pocket and gave her five. So I think it was a lucky upset, as there was no damage but the bars a little disarranged.—W. O., *Ellington, Oct. 12th*, 1889.

HONEY BEES NOT INDIGENOUS TO AMERICA.—When John Eliot translated the Scriptures into the language of the Aborigines of North America, no words were found expressive of the terms wax and honey.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements.)*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

DE QUIBUSDAM.

[2349.] May I, after a long interval, again offer a few remarks under this heading on some matters of interest to which attention has lately been drawn in the *Journal*? I am not sure that I did not some time ago write on the subject of 'Judging Honey,' which has cropped up again. It is not too soon to think about it, if so be something may be settled during the forthcoming winter, and I venture to think, after some experience as a judge and as an exhibitor, that the judging should be by points. How is it possible sometimes to judge between rival stands of dahlias, for instance, without this method? But as this principle may be affected by local circumstances, such as the greater or less variety in the sources of the honey crop, it would appear well if bee-men from different localities would not hesitate to offer their views for what they may be worth. Mr. Gibbins says we have to judge an article 'intended for sale,' and this truth may be put more strongly by saying that we produce honey (at least the bees do, *sic vos non vobis*) for *consumption*—our own and our friends, if we have any to part with.

On this broad ground, then, it might be thought that in all cases 'flavour' should carry the greatest number of points. But in the case of sections should not this be modified? The flavour of wax must to a certain extent combine with that of the honey. We may sample the latter almost alone without making an offensive mess of the exhibit, but the purchaser buys the comb honey for consumption. He looks for a well-filled section, with cells sealed to the wood, clean and tidy in appearance. What filthy things I have seen staged! They might have contained excellent honey, but the sight of them was too forbidding. Then let the judges look most keenly to 'completeness and finish,' to 'attractive appearance' and 'uniformity.' The latter term I would apply not only to size of the sections (that, of course), but to that of cell, and of apparent production about the same time and from the same 'flow.' I would allow no dressing with ornaments. ('Beauty when unadorned is adorned the most.') Let us have only a neat show-stand, in which 'completeness and finish' can be plainly seen. To my eye evenness of the lot and individual finish constitute part of the attractiveness. I don't think 'density' need be more than recognised, and I would, in short, arrange the '20' scale thus:—

Flavour and aroma	3
Attractive appearance	5
Completeness and finish	5
Colour of honey and combs, &c.	3
Uniformity	3
Density	1
	20

Or I would be quite willing to give the '1' of density to uniformity.

In the case of bottles, where you have not to deal with wax, 'flavour' is of course more important, indeed the chief consideration, and it is hardly possible to contemplate a case in which the best-flavoured honey did not get the first prize. Of course it might have been so badly got up, and the bottles so imperfectly filled, &c., that it was 'nowhere,' while the owner was able really to snpply the most delicious honey in the district. Here would be a case in which the consumer need not, and that of the judges would, differ. But no blame to the latter, for we are at the exhibition stand, not at the breakfast or tea table, and as the palate is affected by the sight, we look for the article being well put out of hand, and especially that it be of good consisteney and brilliant. Aroma will be found to follow flavour and colour to a great extent. Not to continue my prolixity I would give—

Flavour	6
Colour and brilliancy	4
Consistency	4
Attractive appearance	3
Uniformity	2
Aroma	1
	20

Under 'brilliancy' we encourage freedom from other matter which got into the article under old-fashioned methods. Consistency is important, because you do not want an article that runs all over your plate, as some well-sealed stuff does this year; and I would not let a dozen bottles lose on the ground of uniformity if they were made up of two half-dozens, each as good as the other, though differing in certain points, and evidently shown with an object. I own I can make nothing satisfactory of 'density,' and it would not be amiss if we had a *glossary* of terms used in judging.

I have not touched on the *standard of flavour*, which varies with localities, and the taste of judges varies with it. Thus those brought together from distant localities can hardly be expected to agree, and there must be a certain amount of 'judges' law.' Many would not like strong heather; I cannot say that I appreciate Canadian linden, and should give the palm to something *distinct but mild*.

I can quite corroborate what you say (p. 426) under 'Late Queen-cells.' Michaelmas daisies, in their succession, are much frequented by bees, but they are never more busy on anything at any time than on *ivy* at present. Rain does not deter them, unless it be quite severe, and they work long hours. So lately as the 12th inst. I found old brood-nests quite filled with glistening nectar, except the few cells which the queens had been able to secure to lay in. One of these queens was a pure fertilised Carniolan, hatched early in July in the apiary of 'Amateur Expert,' who kindly sent her to me on August 17th. Writing respecting her introduction he said: 'If you have a very vicious stock, you will probably introduce this queen to them to cure their tempers. Allow me to warn you, you will not succeed. Bees partake of the characteristics of the workers who nurse them far more than they do of the mother that lays the eggs from which they hatch (I of course refer to temper and working qualities).' Perhaps some of your correspondents may like to remark, with your permission, on the influence of foster parents.—C. R. S., *South Cornwall, October 24th.*

P.S.—I am shocked at the length to which I have run, but I am in your hands. I may, however, adopt the plea of another correspondent, as this is only the second time I have written during the year.

YORKSHIRE NOTES.

[2350.] Being also a Yorkshireman, I read with interest the notes from A. J. H. Wood in the *Journal* for October 17th (2339), as I think it gives great encouragement to us north country bee-keepers when

such results can be obtained from the given number of hives.

Before going further, I may say that my apiary is situated on the banks of the river Tees in North Yorkshire, and that I commenced this season with eleven bar-frame hives and one straw skep, and that I took from them in comb and extracted honey a little over a quarter of a ton, which gives an average of upwards of fifty pounds per hive, which I thought very good for the season. But I also parted with two swarms, as I, like my north-country friend, had them swarming with a vengeance, nearly every day, and not content with one in the day, but sometimes as many as six. But as I did not want to increase my stock very much, I tried the non-swarming system, and kept returning them, and cutting out all queen-cells, and catching the queens, &c.: but it all seemed no use, as swarm they would till the season was done for honey-gathering; and as the rainy season commenced in the middle of July with us, little or no honey was gathered after that time.

But after reading my friend's notes I can see plainly that to be persistent in the returning swarm system is not the most profitable one to follow; for after commencing to hive all swarms, he seems to have had splendid results, though it was so late in the season, mine was done at that date for this season, as the weather with us after that was anything but favourable for honey gathering. Now, as there are two things not mentioned in his notes, which I should like to ask, viz.: Did he use excluder zinc when hiving his swarms? and if he placed the newly hived swarms on the old parent stand after he got them hived. But it is distinctly stated that if any one wanted any further information on hives, or how he managed, &c., he would reply through the *Journal*, so shall be glad to await an answer, as it is my first year to try with excluder zinc, and so feel desirous to know.—North Yorkshire.

FURTHER YORKSHIRE NOTES.

[2351.] In answer to John Foale, in last week's *B. B. J.*, I may say I use broad-shouldered frames, and although they stand out, I find that Simmins' covers keep all rain off. My hives are in a sheltered place. I never use more than one hive tiered, or should, perhaps, find that in a driving rain the wet would lodge on the ends of the frames. I have many frames quite ten years old, and never had one go rotten, or, indeed, look worse for the exposure.

In your answer to 'T. D. S. (Hives for the Moors),' you doubt even *thick* single-walled hives being sufficient protection for bees near the Yorkshire Moors. I have used half-inch hives for years, within a bee-flight of the moors, and never had a hive die out with cold, and never cut a winter passage in my life, or put anything more than the summer quilt over them. Of course, I never try to winter weak lots, and by allowing swarming I always have plenty of bees to unite together in the autumn.—Arthur J. H. Wood, *Bellwood, Ripon, Oct. 25th.*

STANDARD GLASS JARS.

[2352.] I cannot see any advantage in fixing on a standard jar at present. Manufacturers will gradually place in the market the jar that is most in demand. It would be a great loss to many bee-keepers to have to exhibit in one particular jar; and when honey is put up for sale, it is easy to say how many ounces the jar contains, and charge accordingly. Jars are now made to hold 16 oz. honey in different patterns, and it would not be easy to say what pattern might please everybody. I will always exhibit in a screw-cap bottle as long as I can; it is handier for both judges and exhibitors. Every one should be allowed to exhibit in whatever shape he likes, and the prize for get-up special, so that the one that gets the prize for honey might not get it for best got-up exhibit.—W. Hogg, *Castle Douglas.*

HONEY BOTTLES.—1279.

[2353.] Having seen 'Shropshire Bee-keeper,' R. Williams, and others, advocating a different kind of bottle to those at present in use, I think a great many of us would like to see the same thing. Now, as for the sort of bottle that would suit the majority of us bee-keepers, it would be one the same shape as the screw-top; but, instead of the screw-top, a cork like the ones used in the Greek pattern. This is a bottle that looks very nice, but there are two or three objections to it. First, it does not hold a pound, and this is a great fault with those who like to give weight for money, which I hope most of us do, for we all like to get it,—at least I do. Secondly, the bottles are not so convenient for packing, being larger at bottom than at top; this is a serious objection to those that have to send long distances, as the larger the package the more carriage to pay; and when you have to send twenty miles or more, and sell at 9*s.* per dozen, carriage paid, then the carriage is a serious item. Another objection is the mouth of the Greek bottle being rather small, it is not so easy to get it out. Now, for the other bottles, the tie-over is a very good bottle, and holds its weight; but the drawback is, you cannot pack the bottles, for should they get turned topsyturvy, which is very likely in a long journey, they would be almost sure to come to grief. The screw-cap is a nice bottle, but then it is too dear for general use, as a good many would not give the extra money which it costs, and this would be a dead loss to the bee-keeper. I think a good bottle could be made for general use, screw-cap shape, to hold just a pound with cork, to be sold for about one shilling per dozen. And I venture to say that if any maker would go in for the bottle I have described, he would get a ready sale on the small-profit-and-quick-return principle. I have just had an order for honey in bottles, but must be corked. I should think R. Williams makes a good profit from his honey to give such a price for his honey bottles; we cannot afford to here, not if we intend to make it pay. Those that have plenty of money and do it for a hobby is a different thing; but as we are chiefly cottagers here and have to manage our bees after a hard day's work, we want some returns for our labour, although we get a great deal of pleasure from it.—A Cottage Bee-keeper, *Wotton-under-Edge.*

BOTTLES.

[2354.] Now, Mr. Editor, I think this bottle job is a little too tight, why should we have a standard bottle? let us have a pound or a two-pound, as the case might be, and let us have what shape we like. As each exhibit is to be as tasteful as possible, we want different forms to catch the eye; and, besides, if one form of bottle is used some of our dealers will get a patent for the bottle, and the case will be that we will be obliged to buy of him at his price, while otherwise we might be able to get just as good a bottle elsewhere for nearly half the price. Why do not our friends get their bottles from the bottle-manufacturers? there is no fear of them running out of a single size or shape, and they can be bought for a little over half what dealers charge; if members of associations say how many dozens they require, then their secretary could send for the number they require. There is no mistake as to their holding one pound or two pounds if ordered that size, although you can get what they call small pounds or nett pounds, and any shape. Now, Mr. Editor, I have used a bottle for years which I consider A 1. No, not for honey for the baby. Why could we not get a bottle with a glass

screw stopper like a feeding bottle, or why not a glass stopper with a cork hoop round it like a sweet bottle for exhibiting purposes—too dear for marketing, perhaps?—H. JEANES, *Aberdare*.

REPORT FROM LICHFIELD, SOUTH STAFFORDSHIRE.

[2355.] The honey harvest of 1889 in this neighbourhood has been rather below the usual average. The loss of stocks during the previous winter was great, although my own losses were comparatively few; but those stocks which were carried through the winter safely came out weak in spring, with few exceptions, but with the advent of warm weather they gained strength rapidly.

My average yield per stock all worked singly and chiefly for comb honey in sections has been 50 lbs. per stock; the source from which the honey was obtained being chiefly white clover and a little lime-blossom, and my stocks have only required slight feeding to put them in position for good wintering, well on into next spring. My heaviest stock yielded 91 lbs., and my lightest 29 lbs., but another bee-keeper near here (a working man) has obtained 140 lbs. of extracted honey from a doubled stock. My honey was of exceptionally good quality, and I have disposed of the whole (*direct to the consumers*) at 1*s.* per lb., including the package, or, roundly, 10½*d.* net, and could not fill all orders at that price, the demand being so great.

Swarming during the past season has been abundant, but bees generally around here go into winter quarters strong and healthy.—H. WOOD.

REMEDY FOR FOUL BROOD.

[2356.] I had some hives affected with foul brood this summer, two of them very badly, one bad enough, and several a little. The three worst I treated with formic acid according to Mr. Sproule's directions, with the result that now, when putting up for winter, I find there is not a vestige of foul brood in the hives so treated.—M. R., *Ireland, October 23rd.*

Echoes from the Hives.

Aberdare.—I bottled half a ton of extracted honey this year, and one grocer bought the lot nearly, and has nearly sold it again; and another grocer that had a large stock of poorer honey was in a fix because he could not sell his less than 11*d.*, while the Welsh honey could be sold retail at 10*d.*—that is the way to sell honey. I might say it was not my honey, although I extracted it and bottled it, and it was neatly labelled and my labour well paid for; and the gentleman was well satisfied with his year's profit, I believe.—H. JEANES, *Aberdare*.

Kirklandhill, Dunbar.—The honey harvest in East Lothian has been about a fair average of my experience, and not nearly so good as many I have had, though infinitely better than last year. The heather harvest was very unequal; in some localities very good and in others very bad. Taking it all in all, about an average. Swarming very prevalent, and difficult to control. Colonies have gone into winter state in good order, as a rule, and prices for honey good.—GEORGE D. CLARK.

NOTICES TO CORRESPONDENTS & INQUIRERS.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

A. STRINGER.—1. *Queen-cells in Hive.*—This is a sure sign that the hive is queenless. The tenant now in the cell will come forth in due course, and will be unable to get fertilised; the stock in consequence will gradually dwindle away, and by next April will be *non est*. It is not the cause of 'foul brood.' You cannot do anything to get her fertilised, for, as you write, there are no drones. 2. *Glass Super.*—There is no necessity to ventilate same; the bees will do this.

L. W.—*Unfertilised Queen.*—The queen sent had not been fertilised.

A. J.—*Boiled Honey.*—Boiling the honey would cause it to become, when cold, thicker than before. Water must have been added to it to cause it to, as you say, become 'like water.' It will do for spring feeding if it does not turn sour.

JACK PLANE.—*Drones.*—A queenless colony does not kill the drones. We have known colonies to swarm when taken to the heather; also drones raised. No doubt this is the case with yours, and having no further use for the drones, killed them. The fact of one drone being seen trying to enter another hive is no evidence of queenlessness, as drones are common to all hives. If they cannot enter one hive, they will try to do so at another.

Q.—1. *Mead.*—If you add more honey-liquor to make sufficient to fill the cask, then add the yeast, and stand in a warm place, having an equable temperature, fermentation will take place; if not, it is very probable that it will turn to vinegar. Honey vinegar is very good. 2. *Laurel-leaves.*—There are two sorts used for flavouring, according to the flavour required, viz., the bay and the common almond-scented variety.

BEE-KAY.—*Natural v. Artificial Swarming.*—Natural swarming can only be entirely averted by judicious dividing or making artificial swarms, and then united at the close of season. When a hive sends forth a natural swarm, the swarm is hived at once in a fresh hive upon foundation, and placed upon the old stand, the sections removed from parent hive, and placed upon swarm, the parent stock being removed to another location near. This plan so weakens the parent colony that it rarely sends forth another swarm that season, and where the bee-keeper requires no increase, can be united to swarm after honey-flow has ceased, the queen in parent stock being allowed to survive, thus requeening your stocks with young queens.

W. HOGG.—*Shallow Frame Supers.*—Although we have found these very useful, and quite an acquisition in our apiary, we should, if obliged to use your pattern supers, soon discard them. Slides in a bee-hive are our abomination, as all such are so firmly propolised in our district as in a week to be rendered quite useless. Thin strips of wood let in the spaces between the frames instead of quilts is taking quite a retrograde step. Fancy having to remove eleven of such pieces of wood, after having been firmly propolised, before the super could be put on above such a shallow frame super! The thought would make a novice shrink from such a job, whereas with an enamel quilt such could be peeled off without a single bee being aware of the fact. We much prefer frames with bottom-bars. Your frames without bottom-bars is also a step backward, such being used years ago, bottom-bars being added since as an improvement. We beg to return our thanks for the drawings forwarded.

JOHN THOMPSON.—1. *Driven Bees.*—The dead bees were the result of the inevitable fight. You should have driven the bees of the weak stock, removed all queens but one, and then shot all the bees on to the sheet or board in front of the hive; they would then have been less likely to fight. It is now far too late to expect them to build comb. Cannot you give them sealed frames of food? You must give them ready-built combs, at any rate, if you wish them to live. 2. *Bell-*

glass.—Remove this at once, and pack up for winter. See whether they have enough food. Chaff is preferable for packing.

T. D. S.—*Honey.*—This has a most unpleasant aroma and taste. Have you any brewery near you where they could possibly have got at any wort? We are afraid it would nauseate any one who attempted to use it.

A. L. Y. M.—*Avoiding Increase.*—Have your hives made to hold, say, fourteen or fifteen frames; let the bees have the eight or ten furthest from the entrance full of comb, but on no account allow the remainder to be built out. These front frames should have very narrow starters only, and at intervals during the summer these frames should be overhauled, and the comb either cut out or utilised as upper frames for extracted honey; the comb would do nicely for insertion in section boxes. The theory is that while the bees have a vacant space between their brood-nest and the entrance they are less likely to swarm than under any other condition. It is well to state that up to the present there is no infallible rule to prevent swarming. Immediately the honey season is commencing place either sections or shallow extracting frames over such number of frames *only* as it is intended shall be built out, merely covering the front ones with a quilt, so that they may easily be got at for examination. Give plenty of room as regards sections, but do not put on more than one rack at a time. When the bees commence to seal this then raise it and insert another between it and the frames. In all cases sections should be well covered up. We prefer returning a swarm as soon as possible after they have issued, first cutting out queen cells. Should you desire further help do not hesitate to write.

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Author of 'Honey as Food,' 'Honey and its Uses,' Etc.

Translated from the German, and Edited by

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Siebold, C. T. V. ANATOMY OF THE INVERTEBRATES. Trans. by W. J. Burnett. 1854.

Hunter, John, F.R.S. OBSERVATIONS ON BEES. Phil. Trans. 1792. Vol. LXXXII.

Arbuthnot, Dr. THE CONGRESS OF BEES. 1751.

Bellamy, D. NATURE DELINEATED. 1739.

Bevan, E. HINTS ON THE HISTORY AND MANAGEMENT OF BEES. Hereford, 1851.

Barrett, W. THE ECONOMIST.

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Butler, C. THE FEMININE MONARCHIE. 1609.
,, MONARCHIA FŒMININA. 1673.

Dimsdale, J. THE MODERN ART OF BREEDING BEES. 1740.

Gedde, J. THE ENGLISH APIARY. 1722.

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Hyll, Thomas. PROFITABLE INSTRUCTION OF THE PERFIT ORDERING OF BEES. 1579.

Lawson, W. A NEW ORCHARD GARDEN.

Levett, John, Gent. THE ORDERING OF BEES. 1534.

Montague, Peregrine. THE FAMILY POCKET-BOOK. With new discovery of Bees. 1760.

Polhill, Nathaniel. ON MR. DEBRAW'S IMPROVEMENT IN THE CULTURE OF BEES. Phil. Trans. 1778. Vol. XLVIII.

De Re Rustica. 1770.

Ringsted, J. THE FARMER. 1800.

Rusden, Moses. A FURTHER DISCOVERY OF BEES. 1685.

Stevenson, Rev. W. THE GENTLEMAN GARDENER INSTRUCTED.

Thorley, Rev. John. MELISSOLOGIA. 1772.

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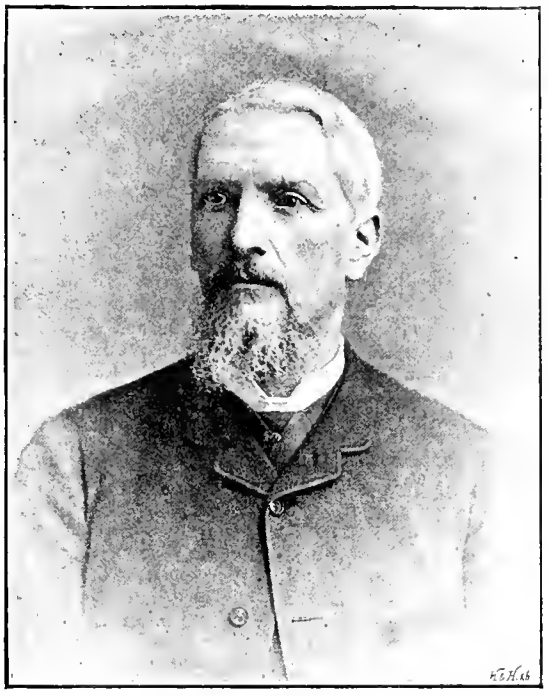
Editorial, Notices, &c.

EMINENT BEE-KEEPERS.

No. 15.—M. EDOUARD BERTRAND.

We have much pleasure in presenting to our readers this week the portrait of one of the most advanced bee-keepers on the Continent of Europe, and who is one of the pioneers of modern bee-keeping in Switzerland,—that land literally flowing with 'milk and honey.'



M. EDOUARD BERTRAND.

Ed. Bertrand was born in 1832 in Geneva, where he was educated and resided until he was nineteen years of age. Like many other Swiss he left his native home to make a living abroad. Paris was the chosen place. He remained in business there until 1873, and was there all through the siege. The anxiety he went through during this time, as well as the insurrection of the Commune in 1871, told seriously upon his health, and not having any children he decided to retire from business and return to his native land. Here he purchased a property on the shores of Lac Leman where he could devote himself to his favourite pursuits of horticulture and arboriculture.

It was not long before he became possessed of two skeps of bees with straw caps, such as are used by the villagers, which a friend of his had offered to him, and with these he commenced bee-keeping. Having no other ideas about bees than those he gathered from the work of his compatriot F. Huber, in his *Nouvelles Observations*, he found that the knowledge acquired was not sufficient for practical bee-keeping. The first two or three years of his novitiate were passed in trials and failures without ever harvesting a single pound of honey. He tried, one after the other, hives with supers such as the Varembey, Ribeaucourt, Carey, Christ, &c.; then hives with small frames like the Berlepsch, Vaudoise, Bauverd, Jarrie, &c., always with the same unsatisfactory results. The neighbourhood of Nyon is not very favourable for bee-keeping, and no apiary had succeeded there before him. The honey flow is of short duration, and therefore more than in other places it was necessary to have strong colonies, an impossibility with the small hives he was using. He became at last acquainted with the works of G. de Layens, *Elevage des Abeilles*, and of C. Dadant, *Petit Cours d'Apiculture*. The methods there described were a revelation to him, and in 1877 for the first time he obtained a good harvest of honey from a Layens hive, which he had placed in an apiary he had started in the mountains on a small family estate. The following year he changed his hives, partly for the Layens', and partly for Dadant's, and established a third apiary at Bex.

In 1880 he started a fourth apiary at Allevays in the Jura, which we visited and described in *B. B. J.* for 1883, p. 96. Here he put up an equal number of Layens and Dadant hives for comparison. This apiary, which later he gave over into the charge of an assistant, has always given good results in spite of foul brood, which decimated it, but which however was stamped out. Not only its first cost of 2500 francs (for hives, building for lodging and workshop and the fences) was quickly returned by the produce, but every year a handsome profit is derived and is divided between M. Bertrand and his assistant. M. Bertrand supplies at his cost all comb foundation, and takes in return all the wax from the cappings and the melting of old combs. When sugar for feeding has to be purchased each pays his share. The assistant does all the work, and all swarms are the property of M. Bertrand, who supplies the hives and appliances. This apiary consists of fifty hives.

In 1876, when the *Société Romande d'Apiculture* was started, M. Bertrand was elected secretary, a post which he occupied for seven years. On several occasions he has been elected President of this Society: this post can only be held by the same person two years consecutively. He has also been the treasurer since 1879.

In 1879, the Society having recognised the advisability of having an organ which would place its members in communication with each other, and inform them of the advances made in bee-keeping, M. Bertrand offered to edit the journal, on condition that he was the sole manager, and undertook to bear all costs. He furnishes the

journal to the members at a reduced rate—namely, three francs, whereas the ordinary subscription was four francs, and, in order to remunerate himself, sought subscriptions at home and abroad. At the end of two years the *Bulletin d'Apiculture pour la Suisse Romande* had sufficient subscribers to pay its cost of production; and these having so rapidly increased abroad, especially in France, he changed its title to *Revue Internationale d'Apiculture*. There is no doubt that this journal is the most practical and best in the French language, and as it is the only one that treats seriously of modern methods, we are not surprised that it is eagerly sought after by advancing bee-keepers. M. Bertrand has also from time to time published several practical works, such as *La Routine et les Methodes modernes, premiers notions d'Apiculture*, in 1882; *Description des meilleures Ruches; Conseils et Notions à l'usage des Començants;* and in 1883 *Calendrier de l'Apiculteur*. The three last were later combined in one volume entitled *La Conduite du Rucher*, which has already passed through four editions. M. Bertrand has also translated our *British Bee-keepers' Guide-Book*, and is at present engaged on a translation of the last edition.

He has been indefatigable in giving instruction, and from 1884 to 1887 every spring he gave a course of lectures and practical instruction at his apiary. This course lasted six days, and was open free of charge to all. The mornings were devoted to instruction, and the afternoons to manipulating hives. Failing health caused him reluctantly to relinquish them. He still from time to time gives lectures in villages, and gains many converts to modern methods. He is appointed lecturer on apiculture at the Government Agricultural Institute at Lausanne. The acquaintance which we made with M. Bertrand some years ago has grown into an intimate friendship, which we hope nothing but death will sever. His persevering industry and indefatigable zeal make him esteemed by all who know him, and it is to him that the French-speaking portion of Switzerland owes the present position it holds with regard to bee-keeping. We hope he may continue for many years to enjoy his quiet retreat at Nyon, and pursue his favourite occupations of bee-keeping and horticulture. A full account of M. Bertrand's apiaries will be found in Vol. xiii., *B.B.J.*

THE BRITISH BEE-KEEPERS' ASSOCIATION.

Conversazione.

Discussion on Mr. Grimshaw's Paper on Heredity.

Mr. Garratt complimented Mr. Grimshaw on his very able and interesting paper, but felt, speaking for himself, quite unprepared to discuss it. He thought it would be an excellent thing if the members could be provided with a syllabus of the topics Mr. Grimshaw proposed to touch upon in any future paper. They would then be enabled to think over the subjects, and express opinions of more value. He could not but think that Mr. Grimshaw's arguments and conclusions were of a speculative character; for instance, to say that the tongue of one bee is not long enough to secure the honey which is secreted in flowers is hardly correct. It is certain that the conformation of flowers varies so much that if honey cannot be obtained from one source it can from others where it is more accessible. They knew that the common red clover could not be fertilised by the bee under ordinary circumstances, the humble bee being the chief agent in such work.

Mr. Blow said his views were on the same line as Mr. Grimshaw's. He was of opinion that the prominent points were transmitted by means of the workers, and not by means of the queen. There were so many points in the workers which the queen did not possess. The whole subject required a considerable amount of thought, and he had no doubt when it had been ventilated in the columns of the *B.B.J.* many readers would come forward and break a lance with Mr. Grimshaw.

The Chairman quite believed that the young of all animals were physically affected to a great extent by foster-mothers. He remembered an instance of a cat and dog living in the same house who had each a litter of young at the same time. The kittens and the puppies were so much together that it was no uncommon thing to see the dog attending to the kittens and the cat to the puppies. The result of that was that some of the puppies developed significant feline qualities. Noting those facts in which only one generation was concerned, and bearing in mind what an immense number of generations of bees were evolved in the lifetime of one individual, it was a fair assumption that many changes in bee-life might occur in a thousand years. Possibly the queen might obtain sufficient honey for herself, but she was certainly minus the wax-producing faculty. She had no power in the hive, all the government being under the control of the workers, who could stop brood-raising whenever they pleased.

Mr. Sambels did not believe in the evolution theory of Darwin, but he thought there was something in the suggestion concerning foster-mothers. Unquestionably the structure of the bee depended on the drone, because they knew what would be the effect if a black bee were fertilised by a yellow drone. With regard to the question of temper he believed the workers had considerable influence. In the case of a hive of vicious bees the introduction of a quiet and amiable queen did not effect a change at first, because the young bees were influenced by the propensities of the nurses. He had a friend who made a practice of introducing new races, and all his bees, even the Carniolans, were vicious.

The Chairman confirmed, as the result of his experience, Mr. Sambels' views on the question of temper.

Mr. Webster concurred in the views expressed regarding the immense influence of foster-mothers.

Mr. Grimshaw submitted that the long tongue of the worker could not have been derived from the queen, who, if she wished, was unable to gather honey; at least, they had no record of her doing so. Even though Mr Sambels would not support the doctrine of evolution, still if he sanctioned the foster-mother theory of development he (the speaker) would claim him as a supporter. The queen laid only queen and drone eggs—she could not do otherwise; and it was the workers who determined what should be the ultimate produce of the egg.

Mr. Garratt said Mr. Grimshaw's arguments rested very much upon the assumption that the food supplied to the young bees was prepared by the nurses—an assertion which he did not think had yet been established.

The Chairman, Mr. Grimshaw, and Mr. Sambels, expressed dissent.

The Chairman moved a hearty vote of thanks to Mr. Grimshaw for his kindness in bringing so instructive a paper under their notice, and thereby setting them thinking. He thought there was a great deal of truth in the 'foster-mother theory.'

Mr. Garratt seconded the motion, and expressed his indebtedness to Mr. Grimshaw, whose suggestions were most valuable. He hoped the paper read that evening would promote further investigation and research.

Mr. Grimshaw briefly returned thanks.

Mr. White asked if any judges present could tell him whether prizes had ever been awarded at shows for untasted section honey.

Mr. Garratt admitted having done so, and knew it to be a frequent practice.

Mr. Webster, Mr. Blow, and Mr. Sambels were in favour of always tasting before awarding prizes, and thought that was the usual custom.

Mr. White said he hoped, by drawing attention to the matter, a rule might be adopted compelling judges to

taste before making their awards, and he also thought it desirable that exhibits of honey should always be in sections or bottles of a uniform size.

Mr. Garratt was averse to prescribing any rules for the guidance of judges.

Mr. Sambels proposed, and Mr. Soar seconded, a vote of thanks to the Chairman, which was acknowledged in a few words, and the proceedings terminated.

BORGUE HONEY.

Bee-keepers in general will be interested in perusing the essay on Borgue honey, p. 462, of *B. B. J.* The writer, Mr. David Leith, though he will find few out of Borgue who agree with him, deserves credit for the manner in which he has handled his subject. He states that the honey gathered there is produced from white clover, and claims a superiority for it over that produced elsewhere. This, then, is the secret of how this famous honey is produced, along with the fact that the soil there is specially suited to its growth.

Until lately few have ever heard of Borgue or of the fame attached to the honey gathered there. This favoured spot lies on the southern part of Kirkcudbrightshire. Like other places along the south and south-west of Scotland, it has a reputation for raising cattle and dairy products. In all cattle-grazing districts, where good soil is kept in a high state of cultivation and with the usual rotation of crops, there are found the richest clover pastures, especially adapted for honey production. White clover may be said to form the staple crop for honey-raising throughout Britain; and, as confirmed by different authorities, some soils are more suited to its growth than others; consequently, wherever it grows the most luxuriantly, there ought to be the best and largest return. Pure clover honey is very mild in flavour, and any pungency or peculiar smack in it is usually caused by other herbs growing in the neighbourhood, and which, according to some critics, improve the flavour.

It is already known that the Borgue bee-keepers receive handsome prices for their honey. This is corroborated by the fact that during the past season nearly all their liquid honey was sold at 2*s.* per lb.; as much as 3*s.* having been paid for a single 1-lb. section in some seasons. Certain bee-keepers residing in the surrounding districts view with envy and amazement the golden harvests reaped by their Borgue brethren. They maintain that any 'peculiar excellence' attached to the name of Borgue honey is not due to the fact of it being any better, but is attributable to other causes, as, for instance, Alexander Halliday, who, in his day, would get up the name of that district by his superior skill and management. Several times the Borgue bee-keepers have been urged or challenged to establish their claim of 'superior excellence for honey' by public competition.

Last autumn feeling ran so high in this matter that the Castle-Douglas Horticultural and Dairy Produce Show decided to offer valuable money prizes to settle this dispute, two classes being specially chosen as a test 'open to the world,' one being three 1-lb. jars, the other six 1-lb. sections of honey. Judges were selected from different parts of the kingdom, the committee being fortunate in securing the Editor of the *B. B. J.* as one of their number. The result was that Borgue honey did not figure in the prize-list. Had they topped the poll on that occasion, they would certainly have had some grounds to claim a superiority for their honey: and as the matter at present now stands any 'peculiar excellence' with them remains yet to be proved. Very few, if any, of the exhibitors on that occasion ever had the honour of competing with their Borgue friends before. In the class for three 1-lb. jars of extracted honey there were forty-seven entries staged, from different parts of the kingdom, and, with few exceptions, all were of high-class quality.

However much the pasturage of any district has to do in the quality of the honey gathered there, very much, however, depends on the practical management after it is taken from the hive. Those who have come 'through the mill' know how difficult it is to keep a first-class sample of honey up to the standard, from the time it is extracted, until it is staged on the show-bench. Even with some a second-rate sample may be improved so as to beat a better lot that is in less skilful hands.

Nothing aids so much in getting up the fame of any particular district as competition. What is wanted to further the cause of bee-keeping—and also to settle where the best honey is gathered (?)—is a large national honey show, suitable for the three kingdoms, where each competitor will have 'a fair field and no favour.' On this subject I may state my views at a future date.—W. McNally.

CANADA.

The products of another year have been gathered in, and the labours of the bee-keeper for the season are nearly ended. With us in Ontario the result on the whole is satisfactory. The yield of honey has been fair, while increase in stock has been abnormally large; moreover the demand for honey has been unusually brisk and prices good. Year after year we hear complaints of the season's yield not being up to the *average*. We are told by some people that this year's honey crop is below the standard. What an average crop is I have yet to learn. If my report as above made be correct, let us accept this season's results as an average or standard by which we may compare future harvests—call it average, I am satisfied to have it settled as such, and think my brother bee-keepers have no good reason to dissent.

Not only is the harvest ended, but the public exhibitions of the season's products are also past. The *B. B. J.* furnishes us with full reports of these shows on your side the Atlantic, and from these we learn that your method of conducting them differs somewhat from ours. You have systematised the work to a degree, while the most marked feature of ours is their magnitude. A pound of honey with you is represented by about a hundred pounds with us. We think it not matter for surprise for an exhibitor to display from one to three tons, your system may ensure fuller justice to the exhibitor, but is not as good a means of advertising as ours. You have formulated an elaborate scale of points by which honey is judged- we have no very arbitrary rules to guide the judges to a decision. The basis upon which awards are made at our shows is mainly confined to three points. For extracted or run honey these are,—flavour, colour, and consistency. For comb—finish, colour, and cleanliness. Some of the distinctions you make in run honey are so nice and delicate that I fear we would have difficulty in deciding upon, or even distinguishing between them. I find you embrace among these 'consistency' and 'density,' also 'flavour' and 'aroma.' I am not well qualified to be hypercritical. To my thinking, the relative density of honeys can only be correctly ascertained by instrumental tests, and I doubt if this is ever done at shows. Consistency is the medium through which its density is determined. With us, at any rate, this is the case. When bottled its density changes but little, while a higher or a lower temperature will rapidly change its consistency. Under like conditions, however, the consistency will remain relatively the same. In the scale of marks Mr. Gibbons gives aroma two and flavour one, while Mr. Chenevix gives flavour five and aroma one. Aroma is perhaps the best test in determining the class of flowers from whence the honey was gathered, and therefore the best in classifying it, but flavour is more important in fixing its commercial value. Moreover, aroma is fleeting in its nature, while flavour remains a permanent quality. Therefore, I think flavour is much the more important quality, and should be rated higher than

aroma. I do not presume to fix a scale of points by which the product of the British bee-keeper shall be judged, but the subject is so interesting to me that the perusal of 2312 and 2313 in the *B. B. J.* called up the foregoing thoughts. I fully endorse Mr. Chenevix's statement that 'attractive appearance is of extreme importance in making the commodity marketable.' Its force must be felt in the pocket of every man who produces honey and puts it on the market. It is recognised by all classes of business men as essential to success that the goods they offer for sale be presentable in appearance and neat in their 'get-up.' This brings me to the consideration of honey bottles, I am glad your correspondents are taking this matter up. We have not yet got just what we require and what we ought to have, viz. bottles at once pleasing in form, correct as to their capacity, and safe to strip to outside points when filled. You are much ahead of us in their design and quality, but you have not yet an entirely satisfactory range of honey-glasses. I speak of them from experience, for of late years I have used some thousands of your English honey-pots. Probably there is not a style of honey-glass made or used in England I have not tried. I have used English and French glass exclusively during the last three years, and few, if any of them, fully 'fill the bill' in my trade. I ship most of my honey to distant points on this continent; some of my regular customers live 1500 to 2000 miles apart and I require glass pots at once neat, safe, and serviceable. Your pots are divided into two classes—screw-tops and tie-overs—both are defective in one or more particulars. The greatest defect in most of the screw-tops is not so much that they leak at the top when turned bottom up, but that the honey oozes through the glass itself, making the bottles unsightly and disagreeable to handle. I have found this defect greater in the French than in the English bottles. They appear to be too thin just where the body of the bottle springs from its bottom. I have not found it to exist in the English tie-overs. The tin cover of the English screw-top is too coarse, and not well finished. The French bottle is much better in this respect. I think if thin rubber rings were substituted for cork wads in all screw-tops, it would effectually prevent leaking. I cannot make a satisfactory finish on tie-overs without using capsules, when these are employed together with corks and parchment it increases the cost and the labour as well. With me all three are essential to a safe and satisfactory finish.—R. McKNIGHT, *Owen Sound, Ontario, Oct.* 14.

ESSEX COTTAGERS' APIARY COMPETITION.

Bee-keepers in Essex will remember that at the annual meeting of the County Association in January last Mr. Ed. Durrant offered a bar-frame hive for the best kept cottager's apiary among the members, and Mr. Reg. W. Christy added 10*s.* for second and third prizes. At a recent committee meeting, Mr. W. Debnam, the expert, having visited the apiaries of all bee-keeping members twice this year, reported on those of cottagers who wished to compete. As one of the competitors was on the committee, the matter was referred to a sub-committee, consisting of Messrs. Ed. Durrant and F. H. Meggy, who has since given their award as follows:—1st prize, P. Hills, Great Baddow, who took 676 lbs. of honey from nine hives; 2nd, J. Winter, Kelvedon Hatch, 281 lbs. honey from seven hives, increased by swarming to nine; 3rd, F. H. Brenes, Brentwood, 300 lbs. honey from seven hives, increased to eight. A. Mayell, Bradwell, took 306 lbs. honey from seven hives, but had made no increase and had not got his stocks so strong as the others for wintering. J. McKinley, Ingatestone, took 200 lbs. honey and sold two swarms from eight hives. Each of the following produced 100 lbs. of honey, and had the number of hives shown after their respective names at the beginning and end of the season: Mrs. Runcieman, Widford (7-5); G. Gibson, Southminster (4-6); R. Curtis, Harlow (6-10). The average yield in Mr. Hill's apiary of nine hives was 75 lbs. per hive; in the next three, taken together, 37 lbs. per hive. At the committee meeting alluded to it was decided to hold a show of honey and wax on November 13th, in connexion, as in past years, with the chrysanthemum show of the Essex Horticultural Society. The definition which this Association gives of a cottager is, broadly, one who does not pay more than 5*l.* a-year rent for his house.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

SUSSEX OLD WORLD BEE LORE.

To the Edditor.

[2357.] Honrd Sir,—Moor nor a month 'as now 'laps'd sints I last 'rote, an' I be 'appy tew say that my grate lit'rary book is now dun, an' t' picturs too (foine 'xamples o' 'igh art, evvery wun on 'em; they oughter be hung in 't Rile 'Cademy), an' reddy fur t' bookcellars, an' I be kwite 'sprised tew find what a lot on 'em thair is in Lunnun; at t' toime I 'rote, I didn't think thair wor moor nor a duzen at t' owtside, but 'judgin' from t' letters I hev' 'ad, why thair must be noigh a bookcellar (*publishers* I find thay otherwize calls thairselves) to evvery street, an' thay all dubbs me '*Esq.*,' too! I never was so 'iley 'oner'd afore in all my loife. W'at would moy pore feyther hev' sed could 'ee hev' liv'd tew see 't! See w'at 'tis tew git up in t' world!

'Ere's 14 letters fur t' *Esq.*,' sez t' postman, with a grin, pullin' up at t' Lodge yesterday.

An' agen this mornin', ''Ere's 11 moor letters fur t' *Esq.*,' sez 'ee. 'W'at a grate litr'ary reppytashun yew hev' got all at wunts, Sam Goodheeve, Esq. I hev' sin yer articles in t' *Bee Jernal*.'

An' I sez, loft'ly a-stratenin' mysel' up tew my full hite, an' wavin' my 'and roun' verry 'mpressively, as I hev' sin our squoire sumtoimes dew 'pon 'casion, 'I hev', an' I 'onestly desarves it, an' fur many a long 'ear tew kum peeple shall talk o' Sam Goodheeve, Esq., an' 'ees book "'Bout B's!"'

I hev' notissed in these 'ere days that purty noigh evverybody loikes tew git as much as possible fur thair money, an' few 'll part wi' a shillin' withowt gettin' a good shillin's wuth in 'xchange, an' kwite roight tew! Now I ken put t' raydin' publik up tew a cap'tal stroke o' bisnez, an 'ee or she as rades these lines, an' 'as got a few shillin's tew spare, an' is in need o' a railly good sownd inves'ment for that sum, can't dew better than buy '*Sam Goodheeve, 'Ees book 'bout B's.*' I ken 'onestly rekummend it as bein' well wuth t' money. Sich a fav'rable oppertewnity tew a small kappitalist for investin' a few shillin's is a verry rare ockerrens indade, an' I be kwite sartin that t' *raydin* publick in giniral wunt let t' oppertewnity litely pass by. Why, bless me! it doant 'ardly ockur wunts in a loifetoime!

Ay! my good fr'ends as rades these 'ere lines, it's verry trew that Sammy 'as used 'ees talons tew sum purpus, 'an arter 'ees de'd, posteritee 'll dowtless raze a monniment tew 'ees mem'ry!

T' bookcellars' letters be all worded s'prisin'ly aloike, thair 'ritin be all cleer an' good; they doant 'rite loike our squoire in a runnin' 'and, an' any child may rade 'em; but atween yew an' I, sir, thair stile doant kwite ekwall moine; but I wunt giv' way t' boastin'—taint bekummin' tew a grate mind tew boast.

As I sed, thair letters be 'sprisin'ly aloike, but thair is wun thing in 'em all which be main puzzlin', t' 'riters, wun an' all, wants tew hev' a look at M.S. Now, sir, what do they *mane* by these 'ere 2 letters M.S.? I 'ad alf a mind tew 'rite an' ax ye, but I didn't 'ardly loike tew. Now, it be allus my practis whenever I be kinder bother'd, or got any thinkin' tew dew, tew goo owt into t' fir plantashun at t' back o' t' feasantry, all in t' quiet, with nothin' tew int'rupt t' sereen flo' o' my thowts, 'xceptin t' feasants a runnin' 'bout in t' underwood, or t' woodpig'uns a-cooin' in t' tree tops, or t' skwirrels a-playin' in t' branches overhe'd; an' thair I sits atop o' t' geat, as silent as t' trees 'round, an' thinks it owt, first litin' my pipe t' whilst, an' a bit o' good tobacker is a wunnerful 'elp tew a studyus man, an' arter a long trile I ken rekummend it tew others in simmerler cirkumstances.

I considdered sum toime all in vane; I got moor an' moor perplex'd wi' 'M.S.' an' if I revarsed t' letters an' made S.M. on 'em 'twas no cleerer, but puttin' big letter A in t' middel, spelt my name, S A M. Still, in coorse, this couldn't be what they meant t' spessify. Well, I smoaked an' thowt, an thowt an' smoaked, until, as luck 'ud hev' it, Phil Hackles 'ee kums along t' footrode as goos threw t' geat a leadin' from t' park tew t' villaje.

'What be 'ee a-thinkin' on, Mr. Goodheeve?' sez 'ee. 'Ye 'pears in a deep *stud* 'bout summat or t'other,—yer noo book, I reckun.'

'Verry troo, Phil,' sez I, startin' a bit at 'ees onexpected 'pearance. 'Thair be these 'ere 2 big cappital letters, "M.S." in t' hull o' my correspondents leately, an' I kant fur t' loife o' me make 'em owt, can yew?' an' as I spoke I put sum o' t' letters intu 'ees 'ands.

'I must say, Mr. Goodheeve,' sez 'ee arter 'ee 'ad kearfully re'd a duzen or so, 'that I sartinly didn't think that a man o' yer larnin' an' disarnment would be obfusticated by sich a simpel trifel as this. I ain't got nothin' loike yer lit'rary 'billyties I well no, an' I doant pertend t' hev'. 'Tis but a little larnin' I 'as ——'

'An' a little larnin', Phil,' sez I, lookin' down patronizin'ly on 'im, 'is sumtoimes a dang'rus thing, 'speshally in lit'rary matters, an' I must obsarve ——'

'Still, Mr. Goodheeve,' sez 'ee, int'ruptin' me, 'thair *maynin'* is as plane as t' loight o' day. Why, M.S., Mr. Goodheeve, stands fur yer *MissuS*, as anybody ken see at a glans, an' t' bookcellars 'breviate it intu M.S., t' seame as yew, Mr. Goodheeve, an' other 'riters dew at toimes wi' thair words when thay wants tew get thair 'ritin' dun in kwick toime.'

At this 'xplanation I pulled another bundel o' my letters owt o' my velviteen cote pockit, an' re'd 'em over agen, an' I foun' that Phil 'ad it t' roight nale on t' he'd for sartin. I'll copy a cupple on 'em 'ere rite away verry kearfully, as a fare sampel o' t' hull, mindin t' spellin', an' these 'ere 2 I re'd owt to Phil:—

'If Samuel Goodheeve, Esq., will kindly submit his MS. ——'

'That's t' pint,' int'rupts Phil; 'that *manes*, in coorse, yer *Missus*,'

'for inspection, Messrs. Primer and Pica will be happy to enter into negotiations with him with a view to publication.'

Another run as follers:—

'Messrs. Bourgeois and Brevier, Paternoster Row, present their compliments to Samuel Goodheeve, Esq, and they will esteem it a favour to have an early inspection of the MS. of "Bees," which they presume, judging from certain paragraphs now going the rounds of the press, is approaching completion.'

'Capitel, Phil!' sez I; 'we hev' solv'd t' riddel arter all,' an' I showted 'Hooray!' an' in my esstassy I throw'd my cap up at a skwirrel which was a playin' on a branch jest overhe'd, an' thair it stuck, an' I'hil, bein' a moor limber man nor I, 'ad tew clime up arter it. I grasp'd t' hull maynin' [meaning?] all at wunts, an' which was this: I 'ad tew send my *M.S.* (Sairy her neame is) up tew Lunnon wi' my book 'bout B's, an' t' bookcellars 'ud dale wi' 'er 'bout prentin' on't. For I've allus heerd tell that a book'riter noze naught 'bout bisnez, bein', in fack, a meer child in sich matters, an' whenever 'ee hev' got any bisnez tew do wi' 'em, 'ee allus doos it threw 'ees *M.S.*, she bein' a better *man* as a giniral rule nor 'ee in this 'ere respect, hens she transacks it for 'im.

Now my *M.S.* is a rare good 'un at a bargin, she'll make a 1*d.* goo furder than most womun will 1*s*; an' I sartinly thowt at t' toime she'd be glad enuff wi' t' job. But for wunts in a way I made a gran' misteak. I reckun'd without my 'ost, as yew shall 'ear in dew coorse.

Well, arter a toime Phil went on 'ees way, an' I gits down off t' geat an' walks indoors in verry stately stile, goin' into t' kitchen wi' my book in 'and, whair I foun' my woife wi' 'er sleeves tucked up busy a-rollin' t' dow for a plum-pie for dinner that day.

'Sairey, my darlin' *M.S.*' sez I, 'yer luvin' 'usband is now 'bout tew reep t' froots o' 'ees lit'rary labers, an' yew air tew take 'ees book "Bout B's" up tew t' Lunnun bookcellars; an' mind ye make a good bargin wi' 'em. 2 'underd poun' down, not a 1*d.* less.'

This ere speech o' moine acted loike a match put into a poun' tin o' gunpowder.

'Yew consated [conceited?] old man, I hev' railly lost all pashens [patience?] wi' 'ee,' sez she, turnin' roun' verry feerce, an' catchin' up t' rollin' pin. 'Be ye zober or no? yer sartinly doant look like it. Git owt o' this or I'll driv' 'ee owt! Yer book indade! only let me get old on't. Yer he no moor fit tew 'rite a book 'bout B's nor I be mysel! Yer noze naught 'bout B's, and that jest 'bout t' hull 'xtent o' my 'noledge on 'em. Little did I think, Sam, when I marryed yer, 7 an' 30 'ear agoo kum next noo-'ears day, that yer would ever let yerself down so low as tew bekum a book'riter—an' 'bout B's, too, of all truck in t' world! But I'll soon put a stopper on 'ee or my neame aint Sairey! For t' last month or moor yer aint dun nothin' 'sides 'ritin' letters an' sich. I wunder t' squoire doant giv' it tew 'ee a-neglectin' yer dooties, an' I've 'ad tew feed t' feasants every day mysel': an,' what's moor, yer 'av' spent all yer wagers a-buyin' postidge stamps an' stashionery. Ye'll soon get stump'd if this ere goos on mutch longer. I nevver was so upset wi' 'ee afore in all my loife, no! no even when ye tapp'd t' old *mayde* [mead?] last 'Xmas-eve, an' went tew bed that nite wi' yer boots on! Kum clare owt o' this or I'll 'elp 'ee!'

T' tell t' plane trooth I lost no toime in doin' so. I fled in 'ot 'aste, unforternitly leavin' my book on t' teable, an' *Bang!* went t' rollin' pin up agin t' door jest as I bolted threw an' shut it 'ahind me.

On t' hull my ewsally sweet-temper'd *M.S.* 'as bin a good woife tew me all these 'ears, I must say, but sints I hev' set up for a 'riter on my fav'rite subjeck B's, 'er temper is wellnoigh past bearin', an so if I mane tew hev' peace an' kwietness at 'ome I must fur a toime put aside all thowts o' 'avin' my book prented. That's t' way tew look at it filersofickally. Sum o' t' anshient 'riters 'ad jest sich woives I've heerd. So I must grin (as best I can) an' bare it. An' in sum way or t'other we've all got our trubbles. Hens yew will persave, Honrd Sir, that my book fur t' present must be put by, an' I must take pertickler kear, too, tew put it owt o' my *M.S.*'s way, as soon, that is, as I dares t' sho' my noaze

in t' kitchen agen, else she swares she'll lite t' fire wi't for sartin.

* * * * * *

[A later communication from our correspondent concerning the untimely fate of his Manuscript reaches us just as we are going to press. We extract the following. —Ed.]

Wave 'pon wave o' sorrer is a-flowin' roight over my sole, an' jest now I be 'nocked over intirely an' run a-grownd loike a starm-toss'd 'rack on t' sayshore an' t' briny billers a-breakin' over 't. My grate book "'Bout B's" is no moor! My *M.S.* hev' kremated it, an' 'tis now redooced tew what we pore mortels shall all kum tew in dew toime—a meer 'andful o' dust an' ashes! T' full 'xtent o' this ere loss t' world 'll never 'no'. No, sir! I shan't 'rite it over agin. Thair aint a bin sich a grate disaster in t' book world ever sints t' day when Alexander burnt t' famons lib'ary in Aigypt, an' that must sartinly 'a bin in t' y'ung days o' our grate-grate-grate ansester Adam, as my Almanik tells me it 'appen'd as fur back as t' 'ear 47. What a toime agoo, sure*ly!*

I allus makes it a p'int tew be kwite k'rect in kwotin' 'istory in regard tew facks and dates.

I seed a sartin genelum jest now wot keeps bees in these 'ere parts, an' I told 'im o' my grate domestik kalamity, an' 'ee sed, 'I sincerely simperthize with yer, Mr. Goodheeve, in t' loss o' yer Mannerscrip' (what 'ee *mayn't* by this ere word I doant 'xactly 'no), it was dowtless a trooly 'riginal lit'rary perduction!'

I sed, 'It wor all that: but, when yer 'rites a *B* book, Mr. R., yer borrers sum o' yer picturs from sum o' t'other book 'riters. Yer ideers may, p'raps, be all yer own; an' moine wor also my verry own, an' all t' picturs 2; an' a bewtiful fruntispeace I 'ad draw'd for t' fust page a-showin' y'ung Tom Hedgestake a-holdin' up t' buck rahbit in wun 'and an' t' hullrush baskit in t'other, under which pictur I 'rote, "T' proof o' t' pudden is in t' 'ating!" an' I must say a moor tender rabbit I never 'ad on my teable! Sorrer I feer 'll drive me to t' old mayde bar'll agen! My luvly book all gon tew dust an' ashes!'

I am, Honrd. Sir,
Your verry sorrerful an' verry umbel Serv't,
Sam Goodheeve.

HONEY BOTTLES.

[2358.] This seems to be a great trouble to some of your readers; perhaps my experience may help them. I first had some (from Mr. Baldwin) with glass tops, and large at the bottom, to hold 1 lb. I found after the honey crystallized some of them cracked in the winter time, and also in the summer when they were held on one side. The honey ran down and made a mess on the shop counters, although I stuck the lid on with surface paper gummed, and, of course, the shopkeeper complained. But some of my customers preferred these bottles before the short screw-cap jars; although the latter held the most, the former gave more surface, and were, therefore, more taking. I next tried the screw-caps without cork wads, and I found people would hold them on one side, and so cause the liquid honey to leak down the jars. I consider these much less trouble than the first, because they take less time to complete. Some of my customers like them because they are handy for putting jam or pickles in for the table. Many of my customers buy a jar for sore throats, coughs, &c., and it is easier to open and close the jar with the metal top. I next tried some tall, thin glass bottles, with corks and capsules. I had to get a cork presser, and they take a little more time than the screw-caps, but they have a good appearance when done, and the great advantage of not leaking. I can lay them down or carry them in my pocket without fear of a mess, and they pack very closely. They are the cheapest and best I have had yet. I also tried the fancy coloured jars. They took some time to tie over with parchment, which I had to dry after dipping in warm water, then starch, and tie tightly. Next year I intend trying 2 lb. bottles.

I have taken 230 lbs. of honey this year, extracted and sections. My bees have to fly over a wall about twelve feet high at the lowest directly they leave the hives. I got an order from the grocer for a dozen screw-caps; then I showed him the corked ones, and obtained another order for them: I then presented the fancy ones, which at once drew another order. Now, if I had only one kind of jar I should only have sold one dozen, so that I think it is a good plan to have a variety. Sometimes I sell a bottle of honey for the sake of the bottle itself. I keep bees for amusement, and do not want to undersell others. I charge 1*s.* 3*d.* for every 1 lb. bottle, and give 3*d.* discount to the tradesman. In this way I get 9*d.* a lb. or more, according to the cost and breakage of bottles. Some of my friends, whom I have shown how to manage bees, have sold their honey at 3*d.* less than I by getting old jam bottles at a trifling cost, and allowing 2*d.* commission to the shopkeeper. I have, however, stuck to my price, and have very little left. A few years ago people used to give 2*s.* a lb. for slabs of honeycomb cut out of skeps; surely they should be content with a nice section for 1*s.* 3*d.* Even now chemists charge 1*s.* 4*d.* and 1*s.* 6*d.* per lb. for honey in your own jar. I find my customers quite content to pay 1*s.* 3*d.* for a lb. of honey nicely done up in a glass jar, with a neat label. It seems strange that no glass manufacturers ever advertise in the *B. B. Journal*, so that bee-keepers might know where to send.—A Kentish Bee-Keeper.

A COLONY OF BEES IN A HOUSE ROOF.

[2359.] Before I explain how I removed the above colony I will first thank those correspondents who have given me advice respecting the width of super crates. I still find that the simplest plan is to nail a half-inch strip of wood along each side every crate; and here I may remark that there would be no occasion to do this if makers would leave a bee-space between the sections and sides of crates as well as between the rows of sections. Four bee-spaces would make the difference of three quarters of an inch. Well, to proceed. The bees mentioned above had located themselves between a slated roof and a lath-and-plaster ceiling of a three-storeyed old manor-house in a space six feet long by one foot wide, and about six inches deep: that is to say, the colony entirely filled that space. To get at them I went into a garret, and with a hammer, chisel, and saw, I removed the lath and plaster, and laid bare the whole lot. I then with my smoker drove the bees up into one corner, and next cut the combs out with a carving knife—the combs were attached to the slates and laths. And then I brushed down with a feather all the bees I could collect into a bonnet box—the only convenient article near—and inverted it on a table as close as the space would allow. A couple of hours later, when dark, I found the bees had all clustered in the box, so I put the lid on, and made a few air-holes through the box with my penknife and brought them home. I united them next day with a weak stock, and although I scented both lots well with strong peppermint syrup, which has always hitherto answered well with me, yet the fighting was great and dead bees many. There were about 65 lbs. of excellent honeycomb. Here I may make a perhaps not inopportune remark about the latest extractor—'the Windsor.' I find that after I have turned the handle round a few times it begins to go exceedingly hard, owing to the weight of the honey running down the sides of the revolving part. I have to wait until the honey has run off and then I begin again. This naturally wastes time. In the ordinary Guinea extractor, as every one knows, the honey is jerked on to the sides of the tin which do

not revolve, so that one may turn as long as one likes without making hard work of it, but with the 'Windsor,' though starting easily, it will stop entirely after a very few rounds, and will not work 'comfortably' again until the honey has all run off the sides down below. And now about the price of honey. I entirely agree with Bee-Kay in last week's 'Echoes.' We bee-keepers should not so much mind selling our sections at 7*s.* per dozen if we thought we were doing good to the multitude, and causing a good demand for honey to spring up. A firm advertising in this journal—probably the one 'Bee-Kay' refers to—were good enough to offer me 6*s.* 6*d.* per dozen for best quality *well-filled* sections if I would take risk and pay half carriage. This I declined, and sold them to a gentleman down south who gives me 7*s.* per dozen, finds boxes and pays carriage.

As to extracted honey, I have been offered 4*d.* per lb., delivered by a firm of grocers and mead makers, and a man up north has offered me 6*d.* per lb. delivered. I am advertising in this week's *Journal* to see if I can get any more than 6*d.* per lb. *without* paying carriage.—Apiarist, *Fairspeir House, Ascott-sub-Wychwood, Oxford, Oct. 25th*, 1889.

REPORT FROM LUDLOW DISTRICT.

[2360.] In this neighbourhood the season of 1889 generally has been anything but a good one for honey. The loss of stocks during the previous winter and spring had been very heavy, and many that came through alive were very weak. The loss has not been confined to skeps only, bar-frames in many instances have come off badly. The period of honey flow was short, barely a month in duration, hence all whose stocks were weak have gained very little, if any, surplus. There were a few swarms, chiefly from skeps, at the end of May and beginning of June; these, in nearly all cases, were hived and converted into stocks to recruit the thinned apiaries. Very few skeps have been 'put down' this autumn, consequently driven bees have been very scarce. In one or two isolated cases, where the bee-keeper took the precaution last autumn to liberally feed, the bees came out well in spring, and availed themselves of the honey flow during the latter part of June and early in July. These bee-keepers have been rewarded with a very fair surplus, but nothing like the 1887 harvest. As in many other parts of the county wasps have been very troublesome. The bees, too, have been very prone to rob, and in some instances have decimated completely some of their neighbouring hives. My own experience of this immediate district is of very short duration—this is my first season at Ludlow—though I have known a few of the local bee-keepers for some few years. My apiary is nearly in the centre of the town, where eight hives were brought over by road from Wrockwardine—forty miles nearly—in the spring; two were very weak, and so were united to some of the others, leaving six. This number has been increased to seven, and I have taken 298 lbs. of honey, 60 lbs. of comb, and 238 run, an average of 42⅔ lbs. on each of the seven hives. This, though by no means a brilliant record, is, I think, satisfactory, from a pecuniary point of view. My first crate of sections was removed on June 24th, and my extracting done on July 13th and 17th. A little honey and pollen from the miscellaneous collection of garden flowers grown in an agricultural town kept up breeding fairly well, and feeding was finished by September 7th. At our local Horticultural Show, where there is a class for honey, open to cottagers only, there was but one solitary exhibit, a small bell-glass, very nicely finished. This I think tells its own tale. I trust that 1890 will afford a more abundant yield than 1889, and that our bees going into winter quarters with plenty of stores will emerge vigorous and strong in the spring.—John Palmer, *Brand Lane, Ludlow, Salop.*

THE PARAGON BEE-HIVE.

[2361.] I have much pleasure in answering the query of 'A Reader' as to my present opinion of the Paragon Hive after having practically tested it. In my hands this hive has been a thorough success, and I intend having more of them next year. I bought two of these hives when they were first brought out, and into one I put the strongest stock I then had, and into the other a good average stock. Neither of these colonies ever swarmed, and each gave me above 50 lbs. of comb honey (I did not send my bees to the heather this year), being the second and third highest quantities got by me. The form in which I got these hives was a floorboard, a body box, two crates of 1 lb. sections, a queen excluder, and a roof. I have never had much difficulty in controlling swarming when working for extracted honey, but comb-honey work requires higher pressure and consequent liability to swarming; so I wanted to test the 'Paragon' for comb-honey. A trial with only two hives is admittedly on too narrow a basis to allow of generalising, and reports from other users will be welcomed by your faithful—Dunbar.

Echoes from the Hives.

North Leicestershire, Nov. 4th.—Between the last day of September and the first of November there were very few days—three or four at most—on which bees were not out foraging, bringing home heavy loads of pollen, and doubtless some nectar, from ivy, giant balsams, borage, and Michaelmas daisy. Rearing brood has been carried on more vigorously than is usual at this time of year; stores have consequently diminished, and many stocks will probably require candy-cake in early spring.—E. B.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

A. Longley.—*Moving Bees.*—You can, with perfect safety, move your bees three miles, and if your friend looks after them and hives all the swarms next season, you will not lose any.

C. M. R.—1. *Minorcan Bees.*—We have not received any information as to the superiority or not of the Minorcan bees sent to several bee-keepers last season. We should like to. We have no records of the doings of the Dalmatian bees. 2. *Paragon Hive.*—We have not heard of any superior results from using this hive. (See letter from 'Dunbar' at top of column.) 3. *Packing Queen for long Journey.*—In the same manner as for a short one, but with a much larger quantity of provisions. The Benton travelling-box is the best package.

Mona.—1. *Red Clover.*—Yes, red clover depends entirely upon humble bees and other wild bees for fertilisation. 2. *Fertilisation of Plants.*—In the case of clover cross fertilisation is secured by the ripe stigma projections beyond the stamens, and it receives the pollen from the bee before this can receive any of the pollen from the stigmas. With apple-blossom and other fruit of the same type the five stigmas overtop the stamens, and ripen before them. When the stamens ripen the stigmas are already past the stage at which fertilisation is possible; therefore cross fertilisation is also in most cases secured. 3. *Honey from an Acre of Clover.*—It is difficult to say, but it has been stated that an acre of clover would support twenty

colonies, and yield from 500 to 1000 lbs. of honey; but we do not think any value can be attached to this statement.

NEW ZEALAND.—We are not aware that the *Australasian Bee Journal* is to be had in this country. It is a monthly periodical published by Hopkins, Huyr, and Leo. We believe the price is 6*d.* per number. There is little in Mr. Hopkins' book on apiculture which is not to be found in works published in this country. All appliances in bee-culture can be procured from Mr. J. C. Firth, of Matamata. You will find an interesting account of Mr. Frith's Home and Burwood Apiaries in the fifteenth volume of this *Journal*, p. 169.

THOS. LEE.—*Feeding.*—You ought to have given them more liquid food earlier. Now the cold weather has come it is useless to attempt giving syrup. You will have to give them a cake of candy on the frames.

INQUIRER.—*Standard Frame.*—The depth, 8½″, is the outside measurement from the upper side of the top bar to the under side of the bottom bar.

A. HAMER.—*Comb for Sections.*—Worker-size comb is the most generally used for sections, and, all things considered, is the best. It is less likely to break away than drone size. On the other hand, drone size is the more economical as regards the labour of building when the bees have to provide the wax. When the bees have small starters only they frequently fill up with drone-size comb if the honey is coming in very freely.

OCYMUM SANCTUM.—Any book on Indian flora or gardening (*e.g.* Firminger, or Hooker, or Roxburgh) will tell you that *Ocymum sanctum* and *basilicum* are two distinct plants. The former is common everywhere in India; it is cultivated in the Hindoo temple gardens especially, and is sacred to the gods Krishnu and Vishnu. The native name is *Toolsi*.—L.

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Its Economical Uses and Conversion into Money.

BY J. DENNLER,

AUTHOR OF 'HONEY AS FOOD,' 'HONEY AND ITS USES,' ETC.

Translated from the German, and Edited by

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EDITOR OF THE 'BRITISH BEE JOURNAL.

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BOOKS WANTED.

GENTLEMEN having any of the following Books to dispose of will oblige by sending date, description, condition, and lowest price, addressed to 'The Editor, British Bee Journal,' 17 King William Street, Strand, London, W.C.

Scudder, S. H. NOMENCLATOR ZOOLOGICUS.

Siebold, C. T. V. ANATOMY OF THE INVERTEBRATES. Trans. by W. J. BURNETT. 1854.

Hunter, John, F.R.S. OBSERVATIONS ON BEES. Phil. Trans. 1792. Vol. LXXXII.

Arbuthnot, Dr. THE CONGRESS OF BEES. 1751.

Bellamy, D. NATURE DELINEATED. 1739.

Bevan, E. HINTS ON THE HISTORY AND MANAGEMENT OF BEES. Hereford, 1851.

Barrett, W. THE ECONOMIST.

Bradley, R., F.R.S. A GENERAL TREATISE OF HUSBANDRY AND GARDENING.

Butler, C. THE FEMININE MONARCHIE. 1609.
,, MONARCHIA FŒMININA. 1673.

Dimsdale, J. THE MODERN ART OF BREEDING BEES. 1740.

Hartlib, Samuel. THE REFORMED COMMONWEALTH OF BEES.

Hyll, Thomas. PROFITABLE INSTRUCTION OF THE PERFIT ORDERING OF BEES. 1579.

Lawson, W. A NEW ORCHARD GARDEN.

Levett, John, Gent. THE ORDERING OF BEES. 1534.

Montague, Peregrine. THE FAMILY POCKET-BOOK. With new discovery of Bees. 1760.

Polhill, Nathaniel. ON MR. DEBRAW'S IMPROVEMENT IN THE CULTURE OF BEES. Phil. Trans. 1778. Vol. XLVIII.

De Re Rustica. 1770.

Ringsted, J. THE FARMER. 1800.

Rusden, Moses. A FURTHER DISCOVERY OF BEES. 1685.

Stevenson, Rev. W. THE GENTLEMAN GARDENER INSTRUCTED.

Thorley, Rev. John. MELISSOLOGIA. 1772.

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Editorial, Notices, &c.

WINTER PASSAGES.

Most books on bee-culture instruct the bee-keeper to cut winter passages in the brood combs in order that the stores may be reached with facility; other methods are only alternative. Now, these holes have on the face of them decided objections, one of which is the likelihood of queen-cells being started in them when not wanted, and, being in the centre of the comb, such cells are somewhat difficult to find. Again, the time for cutting winter passages is one when it is undesirable to go through a whole hive and pull the brood-nest to pieces. Besides, one cannot suppose that in cold weather, with the centre combs becoming rapidly emptied, bees can safely feed the clusters by fetching stores through the aforesaid holes, neither can the *clusters* easily pass through them from the face of one comb to the other side which contains the store. To pass round the edges of combs in search of 'pastures new' often means the chilling of many bees, either on the outward or homeward trip, or else, when the cluster *must* go or starve, they frequently elect to do the latter, and we find the poor creatures crammed as far as possible in empty cells for mutual warmth in the absence of food, the queen in such cases, strange to say, being often quite on the outside of the seam.

To anyone who has had the opportunity of watching the behaviour of bees on the tops of frames, when they get a chance of free movement, during winter and spring, the great desirability of giving preference to top passages over holes in combs becomes very evident. Nothing is better than a sheet of glass over the frames, with free bee-space, for giving us the means of making such observations. The glass is well quilted up, and at any time the quilts may be noiselessly lifted, and an instantaneous view of the business in hand may be obtained. One notices the expansion and contraction of the cluster with the varying outdoor temperature, the gradual emptying of comb after comb, and, what is most to the point, and the germ of this article, the passage *over* the frames of bees removing from front to back of comb, and *vice versa*. We know that bees feed upwards, emptying row after row of cells, and, therefore, they will change their feeding ground on the same system. In 'wintering bees,' a couple of pieces of wood $\frac{5}{8}$ in. square $\frac{5}{8}$ in. apart are recommended to be put across the tops of frames for the purpose of effecting this object, and there are many other ways of getting to the same thing, for it is not so much the method as the principle we desire to impress upon our readers. The 'Hill device' may be used, and cheaply made by cutting the hoops of small barrels into four pieces, and nailing three or four of these to a strip of wood laid in the crown of the arch. This grand central hall will always be the bee exchange, even in the worst of weathers. A better method still, to our mind, would be to obtain at the Japanese stores two or three butt-ends of the very cheap bamboo fishing-rods; when cut to a suitable length and split in two there is an everlasting perfect winter passage which is cleanly, cheap, and strong. For want of more complete things handy at the moment, we have used even a couple of sticks the thickness of penholders. Another advantage of top passages over those cut in the comb is, the hot, vitiated air has a chance of getting away outside the cluster as its poisonous fumes cool and descend. In many cases when wintering up a cake of candy is put on the top of frames as a safeguard; this also is eaten and honey-combed until there is little left but a hollow space, which will be found well filled with bees. The usefulness of a top passage may easily be seen by using a glass dish placed over a long slit cut in quilt, and covered up with warm clothing; it will thus be always observed, upon suddenly uncovering frames over which bees have a way, that the shape of the exposed mass of bees gives an almost exact diagram of the size of the cluster. We cannot recommend the leaving of brace combs on tops of frames in order to afford winter passage, as such inequalities as are left by bits of comb and propolis are rather opposed to that degree of cleanly snugness we like to have our bees in for winter, although where many hives are kept these bits of comb afford a rough-and-ready way of doing what we are impressing upon our readers as desirable.

LADY BEE-KEEPERS.

BY MRS. L. HARRISON.

I attended the North-western Bee-keepers' Convention at Chicago, and while there was a guest of a lady bee-keeper, who lives in a near suburban town. She had nearly forty colonies of bees, spring count, and they averaged 30 lbs. of honey the past season, which was in many localities considered a poor one. This apiary has only half

a range, as it is bounded on the east by Lake Michigan.

Although this lady's bees have a poor range, it is offset by a splendid home market for honey. Customers seek her product in lieu of her hunting them. She runs her apiary for comb honey, and produces a fine article, one-pound sections being all of the same weight, as she uses separators with the sections in wide frames. She melts her wax in a sun extractor, and the whole apiary teaches a lesson of neatness and economy.

Neatness of Product.—A bee-keeper was told by a dealer in Detroit that the nicest honey that comes to this market is produced by some ladies up north; and a lady once told the writer that while some men in her neighbourhood claimed that they could not sell their honey, she had no difficulty in disposing of her product at good prices. She said, 'I know the reason why. I use white poplar sections, and remove them as soon as sealed to prevent the pearly white comb being soiled by the travel of the bees. Then I make a pan of manilla paper, and fit it neatly into a new clean case, and sand-paper every section to remove the propolis before I put them into the case. I have some small cases that hold 12 lbs., and I pack some of these with my choicest sections, and mark them No. 1, and they are sold to families. One of my patrons says that he has customers who do not care what anything costs if it is only choice.'

It seems more natural that the hand of woman should prepare honey for market than the other sex. It needs such careful handling lest the corner of one section hits against and breaks the capping of another. If one section is cracked, or has the sealing broken, causing leakage, it will mar and injure the sale of a whole case.

Extracted Honey.—Last year, in order to see how other producers put their honey upon the market, I purchased a three-pound tin can of extracted honey, sealed with plaster of Paris. When I removed the cover, I saw the legs and wings of bees floating on top, and although it was labelled 'White Clover,' I found the honey to be a mixture of fall flowers. Some producers of extracted honey claim that it does not need to be strained at all, as all floating material rises to the surface, and can be skimmed off, fearing the name of 'strained honey.'

For fear that bees, flies, or other objectionable matter, will accidentally fall into honey while I am extracting, I tie a cheese-cloth over the receiving vessel. I use some tin cans holding four or five gallons, and when full tie fresh cheese-cloth over the top loosely before putting on the cover, thus making doubly sure that no foreign matter can get into it. I prefer tin cans or glazed jars to kegs for holding extracted honey, for when it granulates, it can be melted by setting into a pan of boiling water on the stove. I once bought some honey in fifty-pound kegs; by the time I had dug out the honey with hammer and chisel, melted it, and put it into shape for consumers, I began to think I had earned it without paying the producer. I had extracted honey on exhibition at our state fair. I asked one of my competitors, 'What makes the difference between your honey and mine, both being white clover?' I admired his frankness as he replied, 'I don't know, I thought there was some trick about it.' I told him that I thought the difference was in the store combs; that the honey there on exhibition was taken from only very white combs, most of it built this year, and when uncapping, if I came across a patch of honey of a darker shade, I set it aside. All the extracted honey except my own on exhibition was about the same yellow shade.

It would be gratifying if the many producers of honey that have won the prizes at the many shows held throughout the British Isles would tell us how they obtained the result. Whether in producing prize comb honey full sheets of foundation, or any, were used in sections, or separators? For extracted, if dark comb was used, whether it affected the colour or not?—821 *Hulburt Street, Peoria, Ill.*

OBITUARY.

We regret to have to announce the death of M. H. Hamet, at the age of 74 years. He was for more than thirty years editor of *L'Apiculteur*, a monthly journal of bee-keeping which he founded in 1855. To the last, and notwithstanding failing health, he was at his post. He was indefatigable in his efforts to teach bee-keeping, but for a long time strenuously opposed modern moveable comb-hives, being a fervent believer in fixed combs. In 1856 he published *Petit Traité d'Apiculture*, also a pamphlet entitled *L'Anesthesie ou asphyxie momentanée des Abeilles*. The first edition of his *Cours pratique d'Apiculture* appeared in 1861, and has passed through several editions, the sixth only just appearing. This was devoted to the methods of bee-keeping in skeps, but latterly he added a few instructions for moveable comb-hives, but did not disguise his bias in favour of fixed combs. He for a number of years gave lectures and demonstrations in the Luxembourg Gardens, and went by the title of the Professor of the Luxembourg. He was enthusiastic in his profession, although frequently unjust in his criticisms of modern methods. He had gathered round him a large number of bee-keepers, who will miss his counsel and advice.

REVIEW OF GERMAN AND FRENCH BEE JOURNALS.

By J. Dennler, of Enzheim, Alsace-Lorraine.

(*Continued from page* 453.)

(*f.*) *Nordlinger Bienenzeitung, Editor W. Vogel*, No. 13, 45th year.

In an article headed 'Extension of Bee-keeping,' Engineer Wolman mentions how bee-keeping may be largely extended by a mode which has been acted upon by a small number of benevolent bee-keepers in the Black Forest for the last few years. He says as follows:—'In order to encourage bee-keeping generally, to check the import of foreign honey by producing native honey in larger quantities, and at the same time to procure the kindly aim of *providing a source of earning money* for families that are not in affluent circumstances, as well as to have an occasional honey-comb to delight their children, but more especially *to draw fathers of families from the public-house*, a few bee-keepers, after a good look around, have commenced the experiment of supplying sometimes to a mechanic, postman, man on the railway, or to an agricultural labourer, good swarms, with sufficient comb and honey, on condition of their undertaking to

provide suitable hives for the bees. A stock thus presented to any one becomes his property when the number of colonies have been raised to three, and on the undertaking that the fourth swarm shall be presented by him on similar conditions to another beginner in bee-keeping, who shall be named by the Society or the chief of the district.

(*g.*) *Der Imkerbote. Editor, Mr. Felgentren.* No. 1 (June number).

Bee-master Junginger describes the result of an examination of honey as follows:—'Honey is a mixture of as great a number of medicinal substances fixed on invert sugar in the form of gases or homœopathic quantities as the number of plants that have contributed to produce it; consequently, the honey which possesses the most powerful curative properties is that which contains the greatest number of the specific aromas of flowers. Having placed a quantity of pure honey into a porcelain dish, and ground the same well with a pestle of the same material for more than an hour, I found the curative power of this honey considerably increased, producing a wonderful effect on a patient when a suitable diet was observed and the honey administered for some time in small doses at regular intervals of from ½ hour to 1 hour. The effect was distinctly noticeable in the iris of both eyes, which became more bright-looking. The sharp, pungent taste of honey had disappeared, the sweetening properties increased, and the aroma improved, so much so that, when inhaled, it produced a very pleasant sensation. The longer the grinding was continued the more fragrant the honey became, and the greater its vivifying influence on the whole nervous system. An authority in homœopathy and therapeutics informed me that honey when ground becomes electrified. It seems that the medicinal substances which honey contains are present in a fixed form, having been neutralised possibly by the presence of formic acid, and that these substances become effective only when electrified by friction.

'I hope this discovery will make people see that honey is of great importance as an article of food and medicine, and that it is an absolute impossibility of its place being taken by fruit sugar and other substitutes for honey.'

(*h.*) '*Münchener Bienen-Zeitung.*' *Editor, Dr. Stanther.*

Nos. 15 and 16 contains article by F. Dennler on the history of bee-keeping in Bavaria, especially with reference to the privileges and duties of bee-keepers during the middle ages.

(*i.*) '*Die Pfälzer Bienenzucht.*' *Editor, Mr. Sauter.* No. 7.

This number has an article on the relation between sun-spots and temperature, in which statistics are given of the harvests for the last thirty-three years. Between 1857 and 1888 there were—

2	exceedingly good honey seasons.
6	very good ,,
3	good ,,
2	tolerably good ,,
7	indifferent ,,
2	poor ,,
11	bad ,,

The frequency of thunderstorms was ascertained to coincide pretty well with the maximum number of sun-spots, but there was rather more bright sunshine during the summer when spots were at a minimum than when at their maximum. It was also impossible to establish a relation between sun-spots and the excellence or otherwise of the honey-seasons.

(*To be continued.*)

Flight of Bees.—'Mr. Kaden, of Mayence, thinks that the range of the bee's flight does not usually extend more than three miles in all directions. Several years ago a vessel laden with sugar anchored off Mayence, and was soon visited by the bees of the neighbourhood, which continued to pass to and from the vessel from dawn to dark. One morning, when the bees were in full flight, the vessel sailed up the river. For a short time the bees continued to fly as numerously as before; but gradually the number diminished, and, in the course of half an hour, all had ceased to follow the vessel, which had meanwhile sailed more than four miles.—*Bienzeitung.*

BEE-KEEPERS' VOCABULARY;

Or, Glossary of Technical and Scientific Words used in Works upon Bee-keeping.

Dipping board. (*Sax. dippan*, dip, and *bord*, breadth.)—A wooden board used for dipping into molten wax in order to produce plain wax-sheets, which are afterwards impressed with the bases of the cells.

Direct introduction.—Introduction of an alien queen without a queen-cage.

Disease. *n.* (*O. Fr. desaise.*)—Want of ease; any state of a living body in which the natural functions of the organ are interrupted or disturbed; malady; disorder; illness.

Disease germs.—The common name given to minute unicellular vegetable micro-organisms not containing chlorophyl, multiplying by fission, and present in the blood or tissues during disease; microbes.

Disgorge. *vt.* (*O. Fr. desgorger, de*, from, and *gorge*, the throat.)—To eject or discharge from the throat, stomach, or mouth.

Disinfect. *vt.* (*L. dis*, opposite to, and *infectus*, tainted.)—To free from infection; to purify from contagious matter; to destroy disease germs or microbes.

Distance guides.—Blocks fastened to the sides of frames, and intended to keep them at a fixed distance apart; pins, nails, screw-eyes, or any other service used for the same purpose.

Distance pins, or staples.—Wire pins, or staples, used to keep the frames at a fixed distance apart.

Distended abdomen.—See *Abdominal distension.*

Divide. *vt.* (*L. divido.*)—To part into two or more pieces; to make two or more colonies from one; to separate with a partition.

Divider. *n.*—Metal plates used for placing between hives and supers when these are about to be removed; plate for separating hives; perforated zinc plate used, between back of brood-chamber and wide frames as a queen excluder.

Divisional. *a.*—Pertaining to division; making division.

Division board. (*L. divisio*, fr. *divido, divisi*, I divide.)—A board used for dividing a hive and contracting the space occupied by the colony; dummy; sometimes improperly used for the perforated metal queen-excluder placed between brood-chamber and wide frames containing sections, which should be called divider (*q. v.*)

Dog-bee. *n.*—A drone or male bee. (Arch.)

IRISH BEE-KEEPERS' ASSOCIATION.

The committee met on the 5th inst. Present—Rev. Canon Sadleir (in the chair), Miss Currey, Rev. P. Kavanagh, Dr. Traill, Mr. Gillies, Mr. Read, and the Hon. Sec. A special committee was appointed to draw up an authoritative standard for judging honey at prize competitions.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 2nd page of Advertisements.)*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

OUR HONEY IMPORTS.

The total value of honey imported into the United Kingdom during the month of October, 1889, amounted to 1976*l.* [From a Statistical Office return furnished to E. H. Bellairs, Esq., Christchurch.]

A REPORT FROM NORTH-EAST SUFFOLK.

[2361.] The bee-keepers in the district have not been favoured with a good season since 1886, but last year was the worst on record, consequently many hives were empty this spring; several cottagers lost all. The average loss in skeps would be about nine out of ten, and most of those alive in April were very weak.

This district suffers much in the spring from the cold east winds. This year was no exception. Where feeding was neglected, many stocks that came through the winter died before May. Our springs are late; we rarely take any surplus honey before the last week in June. Only on two occasions (1884 and 1885) have I a record of sections taken off as early as the first week in June.

My apiary, which I run for honey, is about nine miles away, consequently I could not give the necessary attention to feeding in the autumn of 1888. I made large feeders, holding upwards of twenty pounds of syrup, and gave it all in one dose (one stock carried the whole down in three days). In most cases I gave candy on the top when I packed for the winter. Nearly all the stocks had young Carniolan queens. I left them until the early spring, when I found some as strong, or stronger, than when packed in the autumn. All those with over year queens were weak comparatively, and a few dead. The small lots I doubled later on, and gave them all dry sugar, as I am too far away to feed with syrup in the spring. The Carniolans pulled up rapidly, and at the beginning of June were quite ready for business, some covering nearly thirty frames, but nothing to do except raising brood, for we had no honey-flow in this district until past the middle of June. After that date for a fortnight they did well. Things looked bright when, in the first week in July, I took forty sections from one hive, thirty from another, and 30 lbs. of extracted from another, &c., &c. The prospect was hopeful, but rain began to fall shortly after, and they have done but little since. My best hive did not quite reach 60 lbs. surplus. All the stocks are very strong, and they go into winter quarters in good condition. Crying '*Nil desperandum*,' I am hoping for better times in the future.

While there are two or three bee-keepers in this district who have done as well or better than myself, the majority have done far worse. Some have not taken a single pound of surplus honey. A few were compelled to buy to complete orders they had on their books. During my autumnal visit as expert for the L.B.K.A., I have not found a dozen swarms that had gathered sufficient to carry them through the winter, and only two or three that had given any surplus.

I have taken special note of the filling of two and four-way sections that have passed through my hands during this season, and have generally found the four-way superior both in weight and finish. In my own apiary I had $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$ sections weighing $14\frac{1}{2}$ oz., and $4\frac{1}{4} \times 4\frac{1}{4} \times 2$ weighing from 16 oz. to 18 oz., beautifully filled and very flat. These were all four-ways. I also received a quantity from a bee-keeper living in a neighbouring county. They were all well filled, none weighing less than 15 oz.; but while many of the four-way weighed 17 oz. and 18 oz., not one of the two-way weighed more than 16 oz. I trust other bee-keepers will give us their experience upon this subject.—L. Wren, *Lowestoft.*

REPORT FROM WANTAGE.

[2362.] In answer to your request to be furnished with a short report relating to the past season, I beg to say, with respect to the neighbourhood, I know absolutely nothing, for I have had no time to visit any one apiary; in fact I have not had time to do justice to my own, for I have not had the extractor in use once. All the honey I have got is in sections, and a few supers of from 10 lbs. to 14 lbs. each, my total being close upon 800 lbs., being short of my 1887 total by 450 lbs., but better than last year by 600 lbs. My greatest trouble is to get rid of it—I mean to sell it; can give it away readily, and would rather do so than sell at $6\frac{1}{2}d.$ per 1-lb. section to dealers, that being the price I have been offered by one advertising in the *B. B. J.* for 'section honey of best quality,' so any of your readers counting themselves amongst my friends and in want of section honey, just drop me a postcard, then open their mouth and shut their eyes, &c. &c. But if they would rather buy, then make an offer; they know what I refuse. By-the-bye we have a capital arrangement connected with our County Association, viz., the county is divided into districts, and in each district an agent is appointed to sell members' honey, and the district I am in has the good fortune of having two; but it is rather unfortunate for other members that these agents are also producers of honey, and up to the present cannot find room for any but their own; and when they can do so, one thinks he should buy from members, making the best possible bargain for himself; and the other will sell on commission, but has not yet fixed the amount, must refer to head-quarters.

I was amongst the unfortunate ones last winter, losing fourteen out of twenty-three stocks, and one of the nine left was too weak ever to do anything, but, having changed the queen, is now right for this winter, I hope. I purchased four stocks in straw skeps in the spring, from which I got early swarms, and from one of these got 104 complete 1 lb. sections; this is my best this year. I have twenty-three stocks going into winter quarters, sixteen of which I am open to sell between this and next April, having decided to keep only sufficient to produce enough honey for home consumption and to give to friends.—M. Whittle, *Lockinge, Wantage, October 21st.*

[We hope the publication of the above will bring our correspondent the much-needed purchaser. We have heard of a considerable quantity of honey changing hands, owing to the announcements which have appeared in our pages.—Ed.]

BEE-KEEPING IN WESTMORELAND.

[2363.] A few weeks ago I saw in your *Journal* a few notes from Cumberland, and I think it is only fair that something be said about bee-keeping in Westmoreland. I begun this season with eight hives; they have averaged nearly 60 lbs. each, besides increasing their number to fourteen. Considering all things, viz., country climate, my being but a novice in the craft, and following

the trade of a mason, I think this cannot be reckoned amiss. One thing at which I wondered was the difference between the yield of hives. For instance, I made four artificial swarms on the 19th of May. Two of them I put in frame-hives with empty combs, with only one brood frame, that upon which I found the queen. I let them have seven frames each, then I placed on supers. I have taken from them fifty and seventy pounds respectively. I put the other two in straw skeps, full of empty combs (thus the only difference was they were deprived of the frames of brood), yet they did not yield more than 25 lbs. each. How is it there was such a difference? Would my frame-hives have yielded more if I had let them have eight frames instead of seven? My frame-hives are home-made, consisting of outer and inner case, the floor-board being loose. In the autumn I fill the space with cork-dust, and when warm weather arrives I lift off the outer case, thus removing all the cork-dust. They winter first-class, and in summer, the space being empty, the hive is kept cool. But the great drawback is, they are not suited for transit, being in so many different parts. Are not hives in which the packing is kept all the year round apt to be very hot in summer, and is the packing not apt to become damp and mouldy? My bees are common blacks, but I intend getting a Carniolan queen. Would some one kindly inform me through your pages how to proceed to obtain the best results in crossing my blacks?—J. J. Knewstubb, *Brackenbar, Appleby.*

JUDGING BY POINTS.

[2364.] I am glad to see this subject brought forward again, and I hope before it is closed that the B. B. K. A. will frame a standard of points for comb and extracted honey, and I think bees-wax and a collection might also be considered for the guidance of both judges and exhibitors. Exhibitors (of which I am one) feel the necessity of a standard scale of points more than a judge does, because he uses his own opinion, and we very rarely have the same a second time, at least as far as the county show goes, we have had a different gentleman each year; it is worse for new beginners who seek advice of older hands and cannot get it on any authority. If I am not troubling you too much I will give some of the reasons why I advocate judging by points which have come under my notice. I will first take comb honey and give three different opinions of three exhibits shown at two shows in 1887, exhibits A, B, and C. A was first at a local show, B second, and C third; at the county show, B first, A second, and C third, and on the report of county show in the *Staffordshire Advertiser*, the reporter thought C might have been forwarder in the prize list, as it was so very clear, only rather lighter in weight. Extracted honey, I remember once a lot was commended which was the colour of common treacle, and other lots of average quality were passed over; if a scale of points had been used, I think the C card would have been put on another exhibit, as the one would have lost all marks for colour, in my opinion, which would take making up other ways.

Bees-wax.—At some shows we see the awards on wax made from cappings, and at others on that made from older combs of a brighter yellow. Which must we make it from to be first at the next show, if properly managed? A collection of honey is rather a difficult job to make the awards right, as there is so much difference in weight, quality, and proportion of comb to extracted. In making out schedules for this class, committees ought to limit it in weight, and then intending exhibitors would know what to expect, but after that they may get deceived, for at a show that I noticed the awards in this class the third prize was given to a lot not half the limited weight, and the fourth fell to an exhibit only a few pounds short of the limited quantity. If I may venture to give a scale of points for this class, I should first judge the sections and extracted honey by the standard scales (if we get them) and add five to each for uniformity in quality, 20 for weight, beginning at half the limit or largest exhibit, 10 for staging and general appearance, 10 for proportion comb to extracted, and 10 for honey comb designs, bell glass, &c., total 100 points. Neither weight nor quality ought to take it, but both be considered, and general appearance; for instance, take a collection of 250 lbs., which is plenty to make a nice exhibit, 100 lbs. comb, and 150 lbs. extracted, which, I think, is a fair proportion.

Judging sections ought to be in two parts—first, appearance, weight, &c. Judges have no right to break into the comb unless they think of it receiving a prize. Second part, flavour and consistency of those receiving most marks in the first part, if they choose to break them.

For Sections.—First Part.

	Points.
Completeness and finish	7
Colour of honey and comb	7
Uniformity	2
Weight	2
Get-up	2
Second Part.	
Flavour	6
Consistency	4
	30

For Extracted.

Flavour	6
Consistency	5
Colour and brilliancy	5
Condition	2
Uniformity in jars, &c.	1
Get-up	1
	20

For a small exhibit I should not think of giving a prize to a lot of different qualities. If it does not take up too much of your valuable paper, I send it for what it is worth. We have gentlemen in Staffordshire well qualified to give an opinion on the subject either as judge, exhibitor, or both. Will one or more of them let us have the benefit of their experience?—Exhibitor, *Staffordshire, November 6th.*

P.S.—I see in to-day's *Journal* that Mr. Garratt is averse to prescribing any rules for the guidance of judges, but I ask for them on behalf of exhibitors, if the B.B.K.A., through their Committee, cannot frame a code of points which will be serviceable both to judges and exhibitors, how can we expect judges, in the short time allotted to them for perhaps sixty or eighty exhibits, and no assistance, make the awards right in every case? I do not mean to say please every one, because that cannot be. Does Mr. Garratt think that judges have now a free hand to do as they like, which will be taken away if they have a standard scale of points to adjudicate by? If he was like myself, only a humble exhibitor, he would look at it in a different light.

JUDGING HONEY.

[2365.] As in some degree responsible for the proposed standard for judging honey, put forward at the conversazione of the Irish Bee-keepers' Association some time ago, I am very much pleased to see in your issue of the 31st October a letter which deals in a sensible and detailed way with this question. Standards everywhere are now coming to be worked on the decimal system, so as to bring the marks of a perfect specimen to 100; but that is a matter of detail once we have arrived at the proportion of marks to be allotted to each point. I do not quite agree with your correspondent that ornamenta-

tion ought not to be allowed. I think that anything that tends to the attractive appearance of the honey should be admitted. Even if no additional profit be made from honey by the use of ornamentations, or labels, we are encouraging another branch of industry while we are selling our honey; but it will generally be found that a tastefully ornamented specimen will bring a larger profit than one that is entirely dependent on nature's charms. Your correspondent 'C. R. S.,' for some unexplained reason, combines taste and smell in the section, while he leaves them separate in the run honey standard. I would be inclined to have quality left separate. You could get him to draft a scheme to meet these views. We so nearly agree that it ought not to be difficult.—MAC, *Nov.* 9.

FURTHER YORKSHIRE NOTES (2350).

[2366.] 'North Yorkshire' asks me about excluder zinc. I have always used it when hiving swarms, as, long before it was recommended in the *Journal*, I have been in the habit of hiving my swarms on very few frames at first, putting a section case on at once, and thus forcing the bees into the sections, and giving more frames in a few days. I have sometimes removed excluder zinc when sections were partly worked out, but although I have always put the zinc flat on the tops of frames, I have not found, with careful observation, that they work quicker without it.

In tiering hives you must use excluder zinc. I generally put the swarm on the parent stand, but I do a great deal in the way of uniting swarms. Any swarms can be united whilst bees are working in the day-time without taking any precautions to prevent fighting, but it requires to be carefully done, shaking out a few only from the skep at first to prevent them rising.—ARTHUR J. H. WOOD, *Bellwood, Ripon, Nov.* 2.

ROYAL AGRICULTURAL SHOW, PLYMOUTH.

[2367.] I was very pleased to notice in the pages of last week's *Journal* that the Committee of the B.B.K.A. have begun to think about, and arrange for, the forthcoming show at Plymouth, and I sincerely hope it may be a boon and a blessing to all interested in it, but especially to the Association. Since the close of the honey harvest, I have been on the look-out to see if any of the leading bee-keepers in the two counties (Devon and Cornwall) were making any move as to what the bee show would be like. I hope all bee-keepers in the two counties will feel that they have a special interest in making the bee department of the show an interesting one, and that the visit of the R.A.S. to the Metropolis of the West will be a success, and I think that the productions of the two counties by way of honey-gathering will enable bee-keepers to make it so (see Mr. Kempe's letter, No. 2254, p. 339 of this *Journal*; also 'Beekeeping on the Camel,' No. 2320, p. 429.) May I be permitted to suggest that an exhibition of things interesting and novel in bee-keeping be connected with the show of 1890, such as was held this year in Scotland?—JOHN BROWN, *Trebartha North Lodge, Lewannick, Launceston, November 5th.*

BREEDING OUT STINGS.

[2368.] 'I hope your society flourishes,' says one of my subscribers, making his payment for the year (we get our share of support in Essex, but we cannot get the money in beforehand, like some of our friends): 'I really think bees are worth keeping in spite of their being such horribly venomous and unpleasant insects to deal with. I find the British Goat Society is encouraging the effort to breed goats without horns. Would it be possible to produce a variety of bees *without stings?*'

It would be interesting to know (1) if any attempts have been made to breed out stings, and, if so, with what results. 2. If not, whether there is any reason why it should not be *possible*. 3. Whether the absence of formic acid, now introduced into honey in the cells by means of the sting, and supposed to act as a preservative, would leave the honey actually or comparatively valueless, except for immediate consumption. This point ought to be settled by the analyst, if it has not already been so by the manufacturer, before we ask the naturalist to breed out stings, even if he have the power to do so. —F. H. MEGGY, *Hon. Sec., Essex Bee-keepers' Association, Chelmsford.*

INFORMATION AS REQUESTED.

[2369.] Wishing to give you all the information I can, first then in the autumn of last year (which to me was a blank, not taking a pound of honey) I fed them up well with syrup, as much as they would take, then covered them up as warm as I possibly could, did not disturb them till end of March or early in April of this year, and found them, as I thought, very satisfactory; and from that time, as I thought they required it, gave them extra frames till the bottom was full of frames, standard size, and in first week in May began to put on supers. Shallow frames, four and a half inches deep, but one hive holds six and a half inch frames, and this hive produced more honey than either of the others, it gave me 182 lbs. of fine super honey, nearly all the hives had new foundations to work out. Now, as you say that it must have taken a great deal of time extracting, you are quite right, myself and my man Tom scarce missing an evening without spending about three hours in one way or the other amongst them. There is not much difficulty in getting the bees off the frames, we give them a little smoke, then get wing or feather and lightly brush them off. Like B., I am an amateur, not yet able to find the queen, but I study the best way to make them pay by doing them well, and I hope they will do me well in return; and the way I learned to do them well was by taking in the *Bee Journal*, and doing all that it told me to do. Mine are all the old English black bees, and on looking through them after the honey season was over, as three of my stocks did not produce me any honey, I found one hive with a good quantity of bees, every frame jammed nearly full of honey in bottom frames, but not a scrap of brood. This was on Sept. 1st, and thought the cause was no queen. I took a frame of brood from another stock, looked a few days after, and found they had formed a queen-cell, then left them. This month, October 12th, lifted the frames and found large patches of brood on two frames, and with this young queen I hope next honey season they will turn out a profit. Now, as to swarms, I have had four, one went straight away at race-horse pace, and was lost. The next I kept, the two others I gave away. I may just say as a finish that I have not spared expense, as I could hear of others extracting such quantities of honey, thought I would have an extractor, ripener, and all other things useful for the purpose. If B. wishes to know more than I have here stated, I shall be only too pleased to give it.—COTTAGER.

JOTTINGS.

[2370.] 'X-Tractor' has not quite hit the mark, although he made a good shot, when he said that half-sheets of super-foundation, drawn out before the end of July, will be the thing of the future in heather honey-gathering. Our experience points to *full* sheets, drawn out before the heather season, as being more likely to become the favoured plan. His plan of obtaining heather

honey out of brood frames I do not like, as you are certain to contaminate the honey with pollen.

Mr. W. H. Edmonds, I think, has got a little confused in the markings of foreign bees. I do not remember one writer lauding the beautiful yellow colour or gold bands of the Carniolan bees. Mr. Benton, who is an authority on the matter, says, 'Carniolan workers are silver-grey in colour, large-bodied, and strong-winged. The thick fuzz of the abdomen is disposed in light-coloured bands, and as dark drab is the ground colour, the effect is a decided ringed appearance.'

No one having replied to Peter Tonkin (2320), p. 429, I give him our experience in reference to sections fitted perfectly with full sheets of foundation. With us they have been a decided success, but they have not *entirely* prevented passage-ways at the corners, although very few have had them, and these have been considerably smaller than those in the ordinary sections. In no case have the bees refused to work in them, but rather have filled them to the sides of section. The section and foundation we have used are Mr. Howard's, and I would recommend bee-keepers to give them a trial. In fitting either starters or full sheets the objectionable mess with hot wax is entirely avoided.

I hope none of your readers will take offence at these jottings, which are given with all.—Frank Ness.

Echoes from the Hives.

Bridgnorth, South Shropshire, Nov. 9.—I venture to send you an 'Echo' from this district. At the outset I can bear testimony to the disastrous losses of last winter, not particularly from my own experience, as the only stock I lost was one of late-driven bees, and which, although well fed, dwindled rapidly away. My business takes me from home three days a-week, and in driving through the neighbouring villages in the spring I found, from observation and information, that many bee-keepers had sustained most discouraging losses. One had lost ten stocks out of fourteen (this partly through neglect), another seven, another three, and so on. The Rector in my own parish (who takes a great interest in bees, and annually gives a prize at our local flower show for the best honey produced within five miles) lost the whole of his bees, including six swarms of last season.

Several skeppists, I found, succeeded in bringing their bees through the winter in splendid condition, but in one or two instances this result was owing more to good luck than judgment.

Early in the season I discovered that one of my finest imported Carniolan queens had turned out a drone-breeder only, so quickly removed her majesty. The bees here did very well on the beans, and also later on the white clover, of which there was an unusually large number of blossoms, but the lime-trees they scarcely touched.

I observed a great many *humble bees* dead under the limes when the latter were in bloom this year, and I accounted for it by noting the chilly weather just then, which I think must have benumbed the bees, and caused them to drop on the ground. The quantity of these dead humble bees surprised me, and as I thought it singular I mention it, and should much like to hear if any of your numerous readers noticed a similar occurrence. Wasps have been very numerous and troublesome, and robbing by bees and wasps has been frequent. During the summer I detected the bees busy on the honey-dew, of which we were favoured (?) with a liberal deposit on the leaves of the beech, lime, laurel, and privet. What the bees obtain from this source certainly does not tend to improve the quality of their stores, and I am of opinion that they only work it when there is a dearth of real nectar.

My best hive, a strong swarm, yielded fifty full sections, but the average per hive would be about forty pounds.

I can speak very highly of grooved sections, with full sheets of foundation, for prevention of 'pop-holes.' My sections were nearly all perfect. In conclusion, I may say that the bees hereabouts are going into winter quarters much stronger in numbers and stores than last year, and I trust they will come out strong in the spring. Yesterday was quite a summer's day, the thermometer out-of-doors registering 60° and over, for several hours, and the bees at two or three hives were busily carrying in pollen of two colours—light yellow and dark red. Should not this late airing tend to keep the bees healthy?

There are about a score of bee-keepers in this neighbourhood, and I should be glad if we could promote a bee-keepers' association for this district. I am a member of the British B. K. A., also of the Shropshire B. K. A., and I believe such societies are productive of much good.—J. Edmund Roden, *Laurel Cottage, Oldbury, Bridgnorth.*

Ballinacurra, West Cork, Nov. 9th.—It may interest some of your readers of 'Echoes' to hear that bees are here in full work as occasion offers, principally on ivy. Last evening, after sunset even, many bees left their hives, and pollen and honey were coming in up to 4.30 p.m. I never recollect bees working so late before at this date, and then fanning, as one might expect on a June evening, was going on at the entrances of strongest hives until dark, so that they will largely increase their stores. I have no doubt that breeding has been going on freely, but I fear the workers that should live through the winter are taking too much out of themselves, and that spring dwindling may result.—John J. Smyth.

Honey Cott, Weston, Leamington, November 11th, 1889.—Only last week have I finished packing up my stocks for winter, running short of my usual coverings for inside top of hives. I have had some chaff-cushions made, and have put them on; have also contracted the entrances, which, according to all appearance, I shall have to keep them so for some time longer, as the weather is so mild, up to 52°; the bees are on the prowl to see if they can get a chance to rob one another. Last week I saw a few carrying in pollen, but I have no idea what they got it from, as it was a bright yellow. Some days they have been out so much in the middle of the day made one think the season really could not be so far advanced. Have to be careful in storing away spare combs and sections, as the mice are coming in from the fields, and if they get half a chance they soon gnaw things to pieces; have begun to get a few odd things made ready for another season, which I think, we all hope, will be better than the last, even though it has been a good one.—John Walton.

NOTICES TO CORRESPONDENTS & INQUIRERS.

James Johnstone.—1. *Sale of Sections.*—It is the rule to sell sections at so much each; but in doing so this must be definitely stated, and not sold as one-pound sections. We have had a number of $4\frac{1}{4} \times 4\frac{1}{4} \times 2$ sections this year which weighed eighteen ounces, so charged twopence more per section for these. It is the best plan to grade the sections according to weight and quality, charging different prices according to such gradation. 2. The section of honey reached us safely; it was of an excellent quality and flavour; it had been gathered from clover.

Sandringham Hive.—*Moving Bees.*—You do not say how you intend conveying the hives, nor yet how far you are going to move them. If you supply these particulars, we will deal with your case in our next issue.

A Novice.—Neighbour or Blow.

Raw Hand.—*Confined Queen.*—In the case you refer to

we should certainly expect the queen to go on laying, but we should not be surprised at the bees raising a fresh queen on the open side of the hive. The fact of the queen being so confined would not of itself be very detrimental, but the bees would in all probability consider the circumstance as a serious interference with their rights, and they would quite likely enough stop the queen from laying.

REMOVAL.

Our energetic young friend, Mr. John M'Nally, we are informed, has left Glasgow, having accepted the position of manager and buyer in a large co-operative society at Laurencetown, Co. Down. There he intends prosecuting bee-keeping on a more extensive scale than in his former place; and we feel assured that it will be his aim to give every assistance to his new neighbours to carry the honours that usually went to Scotland to the part where his lot is now cast. The pasturage in his neighbourhood is all that could be desired, and we have great hopes of his making bee-keeping there a success.

PYROLOGIST.—Lieut.-Col. W. A. Ross, some years ago, used the word 'Pyrology' as a substitute for 'blow-pipe analysis,' or 'blow-pipe chemistry;' and his large work on blow-pipe analysis, or fire chemistry, he entitled *Pyrology*, and chemists who used the blow-pipe in analysis he called 'pyrologists.' I can but fancy what a surprise will be in store for some lover of pear-culture who may in the future send for *Pyrology*, and get Col. Ross's book at the cost of about a guinea. I must, too, respectfully submit that Col. Ross was very much more than a 'dabbler in fire.'—W. H. H., *East Kent*.

CORRECTIONS.—P. 473, col. 2, line 10 from bottom, *for* projections *read* projecting. Same page, 8 lines from bottom, *for* stigmas *read* stamens.

BEESWAX:

Its Economical Uses and Conversion into Money.

By J. DENNLER,

AUTHOR OF 'HONEY AS FOOD,' 'HONEY AND ITS USES,' ETC.

Translated from the German, and Edited by

THOS. W. COWAN,

EDITOR OF THE 'BRITISH BEE JOURNAL.

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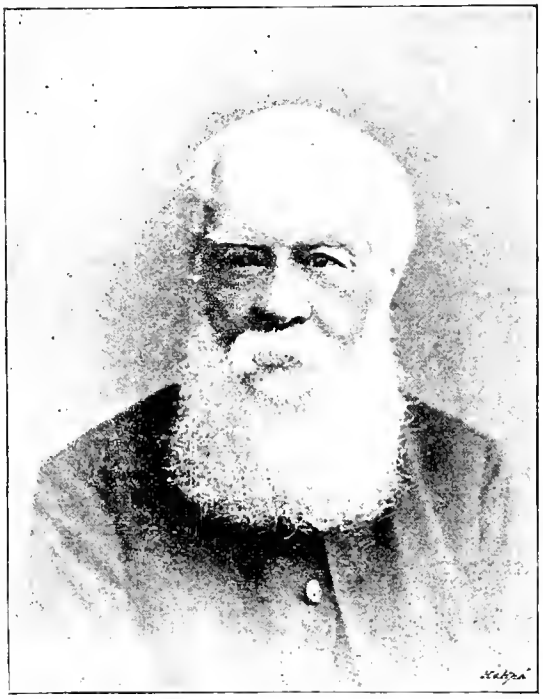
Editorial, Notices, &c.

EMINENT BEE-KEEPERS.

No. 16.—THE REV. F. T. SCOTT.

We have this week the pleasure of presenting to our readers the portrait of an honoured, veteran bee-keeper, —one who for many years has displayed that enthusiasm for the industry which is absolutely necessary for success in apiculture.



REV. F. T. SCOTT.

The subject of our sketch is the Rev. Frederick Thomas Scott, M.A., incumbent of Hartlip Vicarage, Sittingbourne, Kent. Mr. Scott was born on the 6th of March, 1812, in the town and port of Folkestone. His father was John Scott, Esq., Inspector of H.M. Customs and Captain of a Volunteer Artillery Corps. In the year 1821 the family removed from that place to Smeeth, near Ashford; in which place his youth was spent, the Grammar School at Ashford supplying his classical education. Mr. Scott was always a great lover of the country, and more addicted to the study of natural history, especially of birds, than boys of his age usually are.

In the year 1830 he entered at Worcester College, Oxford. During his college life his attention was not directed to the study of bees, except that he understood from his tutor, the Rev. R. L. Cotton, that a cousin of his at Christ Church kept bees in his room. This was the celebrated bee-master of after days, Rev. W. C. Cotton, author of *My Bee-book*. In 1835 Mr. Scott was ordained by the Bishop of Lincoln to the curacy of St. Ive's, Hunts, where he resided for one year, the only year of his life spent out of Kent. In 1843 he became rector of Eastbridge; and in 1844 we find him perpetual curate of Hythe, Kent.

It was not till the year 1849 that Mr. Scott took any interest in bees, his attention having been drawn to them by his then curate, the Rev. Matthew Woodward, who had been greatly interested in a swarm which he had seen taken in the garden of his lodging. Mr. Scott was at once seized with the same intense desire that his curate had expressed to know something about bees, and formed a resolution to keep them. No time was allowed to elapse before putting this resolution into effect, for the following year, 1850, found him the possessor of eight swarms of bees, one being placed in a set of Nutt's Collateral boxes; another in a flat-topped hive of Mr. Payne, the well-known author of a book on bee-keeping.

Like most bee-keepers, Mr. Scott became from this time forth an enthusiast in the science and art of bee-keeping; and much of his leisure time was spent in obtaining information on the subject. He read all the works he could get hold of, and visited all the apiaries in the neighbourhood, and some also at a considerable distance from home. He was especially interested by an inspection of that belonging to Mr. Golding, of Hunton; where he had the great satisfaction of seeing Huber's leaf-hive in full work, as well as the Grecian hive, which Mr. Golding had done so much to introduce and recommend to the public, and which was being worked with great success by himself as well as by a neighbouring clergyman, who kindly instructed Mr. Scott in the right way of using it. Mr. Scott met with a considerable amount of success as a bee-keeper, and had the satisfaction of astonishing and delighting his friends by the sight of some excellent supers of comb-honey in glasses and boxes.

In the year 1853 Mr. Scott was removed from the incumbency of St. Leonards, Hythe, to that of Sibertswold, near Dover (*vulgo*, Shepherdswell), to which vicarage his bees were in due time removed. It was during a lengthened residence of twenty-one years in this place that a great advance was made in his knowledge of bees and bee-keeping. Here it was that he built, and then discarded as inconvenient and objectionable, a bee-house upon a large scale. Here it was that, having learned from American writers on bee-keeping of the excellent qualities of Ligurian bees, Mr. Scott was one of the first of English bee-keepers to import them into this country. This was effected through the assistance of Mr. Neighbour, who introduced Mr. Scott to M. H. C. Hermann, of Canton

Grisons, Switzerland; with whom Mr. Scott corresponded, and received from him in the month of October, 1859, two cassettes, each containing a Ligurian queen. One of these died on the journey; the other was successfully placed at the head of a strong English colony, and flourished at the commencement of the year 1860. It sent out a strong swarm on the 2nd of July of that year, with which Mr. Scott was greatly delighted, and of which Mr. T. W. Woodbury, of Exeter, afterwards remarked in a letter, 'I should think that this was the *first natural swarm* of Ligurians that had been seen in England.' But to the great regret of Mr. Scott they never swarmed again, for the gloomy summer of 1860 proved fatal to the race in his apiary; whilst Mr. Woodbury's, having been kept from swarming, survived and flourished.

About this time it was that the greatest advance was made in bee-keeping by the introduction of frame-hives; and in this matter also Mr. Scott had the great satisfaction of lending a helping hand. The famous *Practical Treatise on the Hive and Honey Bee*, by L. L. Langstroth, was published at New York in 1860, and came into Mr. Scott's hands in 1862. In the perusal of this most complete and exhaustive work, he became deeply interested, and at once set himself the task of constructing a hive something upon Mr. Langstroth's lines: but, as Mr. Scott thought, more suited in size to our variable climate and short, uncertain summer, and he hoped also with some improvement of his own. This latter consisted in the tops of the frames projecting about an inch beyond the front and back of the box, so that the frames might be lifted out without having to lay hold of them within the hive. This hive when completed was described in the *Cottage Gardener*, No. 262, and Mr. Scott gave it the name of 'The Sibertswold Hive;' and he allowed Mr. W. J. Pettitt, of the Apicultural Institute, Dover, to make and sell them as he pleased; and in the course of a few years many hundreds were sent into different parts of the kingdom with his own addition and improvement of the metal bar rest. A model of this hive was successfully exhibited by Mr. Pettit in Paris, and, with equal success by Mr. Scott, at one of the great exhibitions in the Horticultural Gardens, London. A silver medal was awarded in each instance.

Besides these efforts in the cause of an improved system of bee-keeping, Mr. Scott delivered numerous lectures on bees and bee-keeping. At this time also Mr. Scott became acquainted with all the known bee-keepers in the county, especially two distinguished individuals who were also writers on the subject of bee-keeping, named Major A. Munn, of Throwley, and Dr. Edward Scudamore, of Bellevue, Harbledown; besides Mr. Golding, of Hunton.

Having laboured in the cause of bee-keeping for a period of twenty-one years, Mr. Scott changed the preferment of Sibertswold for that of Hartlip, near Sittingbourne. His pets, of course, accompanied him in his change of residence, most of them occupying the Sibertswold hive. This had been successfully worked at Sibertswold, and was used for some time at Hartlip, but finally abandoned for the more simple and easily workable hives that came into general use at this time; amongst which was one of Mr. Scott's own arrangement called the 'Hartlip Hive,' and which was used in some apiaries, but has now yielded to more simple forms.

But it is time that some notice was taken of Mr. Scott's connexion with the British Bee-keepers' Association: this dates from the time of its first establishment by Mr. C. N. Abbott, in 1874, who had on all occasions his warmest support. In its days of infancy, when it was glad to receive the patronage even of a country vicar, Mr. Scott figured in its annual report as a Vice-president. He constantly attended and exhibited at its annual exhibitions at the Crystal and Alexandra Palaces. For some few years after this he was called upon to act as one of the Judges at the Annual Exhibition at the Horticultural Gardens; and for many years has been elected, by the subscribers, to fill the honourable office of Committee-man. Thus he may be said to have been intimately connected with the B. B. K. A. from its very formation.

And here too, last of all, may be mentioned the success of Mr. Scott's efforts in forming an Association of the B. B. K. A. in his native county, Kent, or rather in the Eastern portion of it, for the Western division was first in the field. A bee fraternity, originating in a country parish, and called the Cray Valley District Branch of B. B. K. A., formed in the year 1878, gradually extended itself over the whole district, being called the West Kent B. K. A., by which name it was known until October 1881, when a meeting was called by Mr. Scott at the Cathedral library in Canterbury, which resulted in the formation of a Bee-keepers' Association for the Eastern division of the County; and no time was lost in uniting forces with the bee-keeping brethren in the Western division; so that, as was well observed by the excellent secretary, Mr. Garratt, 'what was at first the Cray Valley, and then the West Kent Bee-keepers' Association, now assumed the full dignity of the Kent B. K. A.'

We trust that the reverend gentleman may be spared for many years in the performance of the duties of his high vocation, and that he may have much pleasure in looking back on the course of an active and useful life.

THE CARE OF HONEY.

By Allen Pringle, Canada.

After getting the crop of honey comes the proper care of it, and then its profitable sale. It is sometimes about as easy, if not easier, to get the crop as either to take care of it or sell it. The apiarist who can secure the best crop his location can yield, and preserve it in good order till he sells it profitably, is on the top rung of the ladder, and is a fit subject for a certain amount of envy. As to *how* to get the honey there is a great deal written—wise and otherwise—and as to the selling of it there is also much written, but as to its preservation till it reaches the table of the consumer, there is not so much said and done as ought to be. This matter is of much importance both to producers and consumers, and the prevalent ignorance of how to preserve honey in good order till it is eaten is by no means confined to the latter. This prevailing ignorance is one of the causes of the popular notion that honey is extensively adulterated—a notion that very far exceeds the reality. Both comb and extracted honey may undergo so much change and deterioration without adding a particle of anything to it, or subtracting anything from it except what, by improper handling, it has absorbed from the atmosphere, or lost by evaporation, that adulteration is readily predicated by the uninitiated. Such deterioration, of course, also diminishes the consumption, for people do not want an insipid and inferior luxury, as honey is still regarded as a luxury instead of a staple, which it is, or ought, to be. An inferior staple may be tolerated, but not an inferior luxury.

Now, it must be confessed that it is much easier to point out these facts to the reader than to tell him just how to preserve his honey 'as good as new.' Indeed, after a long experience I have come to the conclusion that it cannot be done, even for a few months. Comb-honey we do not expect to preserve good longer than about a year, but extracted honey we have been in the habit of thinking could be preserved almost indefinitely. We have also been in the habit of thinking that granu-

lated extracted honey, when properly liquefied, is just as good and rich in flavour as new. Of this I have my doubts. The peculiar aroma and flavour are a little changed, which we may safely call *impaired*. And some finely-flavoured grades of comb-honey will lose in flavour within three or four months of production, in spite of what we regard as the best handling—in spite of all we can do. To prove the matter in regard to the extracted, take two jars of number one clover or linden honey which has been extracted from well-capped combs, seal them up air-tight, and place together either in the light or dark, as you like. Keep one of them standing in warm water, hot enough to prevent granulation, and leave the other alone. In due time the latter will be firmly granulated, while the former will be still liquid. Now, take the granulated one, and liquefy after the most approved fashion. Take a week about it if you like. Then bring both to the same temperature, and proceed to test qualities, and tickle your palate with both. If you can't blindfolded select the one as best-flavoured that has never been granulated, you can do less than the writer, in consequence, probably, of using tobacco or whisky, or both. If your nerves of taste are in normal condition—unadulterated by drugs, condiments, liquor, or tobacco—you will be able to distinguish the one from the other by the sense of taste alone.

With comb honey such a test is, of course, impracticable. But if we can trust our taste the deterioration in flavour within the three or four months is plainly discernible. The following test, however, can be made:—Take three sections of number one honey from the same super, and as nearly alike in capping as possible. Take a fourth one, and taste it while it is fresh from the super. Take the three perfect ones and dispose of them in the following manner:—Wrap number one up in tissue paper three or four thicknesses, and place in a dry, warm place, well ventilated, where the temperature never goes below 90° Fahr. Place number two, unwrapped, in a room, say a kitchen, where the temperature and humidity of the atmosphere vary at different times—going down to 40° to 50° at night, and up sometimes by day to 80 to 90°. Take number three and put it in a damp cellar, unwrapped, and near the floor.

At the end of three months try your palate on the three sections. In this case it does not make so much difference whether your nerves of taste are benumbed and perverted with the liquor and tobacco or not. You will be able all the same to distinguish at least between number one and number three, and very likely you may be able to notice quite a gap between numbers one and two. The normal taste (the only one competent to judge accurately) will find number one well preserved and fine flavoured, yet not quite up to the one tasted three months before. Number two he will find greatly deteriorated, and number three quite unpalatable—not fit for *him* to eat.

So far as I know by experience the best we can do to preserve the quality and flavour of comb honey is to wrap each section separately as above, and place in a perfectly dry and warm place where the temperature is never allowed to get below 80°. The best we can do with extracted honey is to evaporate it if not thoroughly ripened when extracted, and then seal it up air-tight and place in a dry, cool place. When granulated liquefy slowly in warm water, and cool rapidly. Then leave it sealed up air-tight in a dry, cool place till used. If allowed to remain granulated until used it should never be kept in a warm place.

The granulation of honey in the comb is becoming a serious matter of late to the apiarist, and seems to be quite beyond his control. Last season the complaint was general, and the granulation went on during the fall and winter in the hives with the bees as well as outside them, resulting in a considerable loss of colonies through starvation. This season I notice some tendency in the same direction, but not sufficient, I think, to seriously affect the wintering. It may possibly become necessary in the future, in exceptional seasons of drought, to winter on sugar syrup, even where sufficient honey is present. We may check or wholly prevent the granulation of comb honey outside the hive, but how to prevent the granulation of winter stores within the hive is the question.—*Selby, Ontario, Canada.*

CHELMSFORD HONEY SHOW.

Keen was the frost and crisp was the air when at an early hour I sallied forth to take the train at Chappel Station on Wednesday, November 13th. My friend Mr. Meggy, the indefatigable Secretary of the Essex Bee Association, had asked me to undertake a task which Mr. Raynor was in former years accustomed to discharge—the rather thankless task of deciding between competitors for various money prizes.

At Mark's Tey I greeted that veteran bee-keeper, Mr. Fitch, of Sible Hedingham, and so was sure of seeing something good at the Honey Show. We were not long in reaching Chelmsford—a place which I had never seen before. Like many of our old towns, it consists mainly of one long street, very narrow in some parts, with various branches and bifurcations leading I know not whither. A very sleepy place must Chelmsford have been half a century ago. Those who delight in houses which look as if they would punish you for your impertinence if you stayed under their shadow any length of time, or carried a heavy trunk into the upper regions, may still find something to interest them in Chelmsford. But a new spirit has evidently taken possession of the place. Preparations are being made to light the town with electricity. A charter of incorporation has recently been obtained, and a mayor and corporation now control its destinies. The great question what the civic seal should be has been duly discussed and decided. Photographs of Chelmsford's first mayor may be seen in the shop-windows, and if he is as good as he looks, Chelmsford is fortunate.

The Corn Exchange is a fine building inside, and at ten o'clock was already gay with golden chrysanthemums and rosy-cheeked apples. When I entered, Debnam, the well-known expert of the Essex Association, was busy in unpacking and arranging everything at the part assigned to the honey show. Just as the nectar in the flowers attracts the bees, so the sight and scent of honey in a room are sure to draw the bee-keepers. Soon we had around us Messrs. Meggy, Aubrey, Edmund Durrant, of Chelmsford, Hills, F. H. Brenes (Brentwood), J. Winter (Kelvedon Hatch), and others unknown to me, but not altogether unknown as skilled in apiculture.

Of the eleven classes in which prizes were offered, some were very well filled, chiefly those open to amateurs for sections and extracted honey. There was also a large entry in the class for wax. The extracted honey was all of it excellent, and the quality of one or two exhibits exceptionally good. Mr. Fitch's honey from Sible Hedingham could not be surpassed for quality, but it won the second prize only, as honey of very superior quality was shown in a more attractive form. The lady to whom first honours went has proved herself worthy of any competition on previous occasions. There was a separate class for granulated honey, in which there were several good exhibits. There were also two excellent entries of super honey in the comb, not 1-lb. sections.

The numerous highly coloured and large apples which, were laid on a very long table, offered one more proof of what Essex may be hereafter. No county in England, I believe, can produce better honey, and its capabilities for producing fruit I am convinced are equally good. Such specimens of Blenheim Orange, Peasgood's Nonsuch, Cox's Orange Pippin, Emperor Alexander, Cellini, Stirling Castle, Grenadier, and other grand apples!

There, too, were Beurré Diel, just in season, and Uvedale St. Germain (pears), both enormous in size. My friend, Mr. Dance, of Gosfield Hall Gardens, 'apiarist, pomologist, pirologist,' was of course among the winners.

The scale of marks which I used at Chelmsford may interest your readers. It is quite open to criticism, particularly the scale for sections. Let me observe that it is better to have a large than a small minimum, as it is easier to mark differences with a large number, and in marking sections a high proportion must be allowed to No. 2.

I agree with your correspondent, 'Exhibitor,' that the judges ought not to 'break into' the combs, unless they think it deserving of a prize. One of the sections selected for a prize should, I think, be tasted before the award is settled, but the comb need not be disfigured if the judge is careful; a small quantity of honey from the edge of the section is sufficient.

The following is the scale of marks to which I have referred:—

SECTIONS.

1. Appearance (attractiveness of sections-case) ...	5
2. Completeness of sections, evenness of comb, &c.	35
3. Uniformity of colour and clearness	15
4. Colour and density of honey and comb ...	10
5. Sealing (loaded, medium, thin)	15
6. Flavour and aroma	20
	100

In No. 2 every section to be examined, and one or more marks taken off for every defect.

EXTRACTED HONEY.

1. Attractiveness, neatness of bottles, &c.... ...	15
2. Uniformity of colour	15
3. Colour, brightness, clearness, &c.	20
4. Freedom from wax and impurities	10
5. Consistency and density	15
6. Flavour and aroma	25
	100

—E. BARTRUM, D.D., *Wakes Colne Rectory, Essex.*

The following is our report from Chelmsford—:

The autumn show of honey and wax of the Essex Bee-keepers' Association was held in connexion with the Chrysanthemum Show. There was an unusual number of exhibits, of excellent quality, and the judge, the Rev. Dr. Bartrum, of Wakes Colne, had to exercise great care in his awards. There were sixteen exhibitors and fifty-five entries, making a total of 551 lbs. of honey, of which over 200 lbs. was in comb. Mr. Debnam, the expert, showed a wasp's nest, which he took at the Rev. J. P. Tweed's, Little Waltham.

The following was the prize list:—

Twelve sections comb honey (dealers).—1. W. Debnam, expert, Chelmsford (only exhibit). Twelve jars clear honey (dealers).—1. W. Debnam (only exhibit). Twelve jars granulated honey.—1. W. Debnam. Twelve sections 1889 honey.—1. Mrs. Runcieman, Widford; 2. Peter Hills, Great Baddow; 3. J. Winter, Kelvedon Hatch; h.c., Mrs. Gibson, Stock Rectory. Twelve 1-lb. jars, clear.—1. Mr. Cobb, Chatham Hall, Great Waltham; 2. C. J. H. Fitch, Sible Hedingham; 3. J. Winter. Twelve 1-lb. jars granulated.—1. C. J. H. Fitch; 2. F. H. Brenes, Brentwood; 3. W. Dance, Gosfield Hall. Super of honey.—1. A. Mayell, Bradwell-on-Sea; 2. Mrs. Cobb. Collection of comb and extracted honey.—1. W. Debnam. Collection comb and run honey.—1. P. Hills; 2. F. H. Brenes and W. Mayell. Single section.—1. W. Debnam and P. Hills, equal. Wax.—1. Mrs. Jackson, Tillingham; 2. J. Gomm, Bradwell-on-Sea; 3. W. Debnam.

REVIEW OF GERMAN AND FRENCH BEE JOURNALS.

BY J. DENNLER, OF ENZHEIM, ALSACE-LORRAINE.

(*Continued from page* 477.)

k. L'Apiculteur, Hamet, No. 8.—The following resolutions were passed at the Apicultural Congress of 1889 held in the Luxembourg Gardens in Paris on 14th and 15th of July:—

1st. Considering that the bee, besides furnishing useful products, is instrumental in fertilising a number of plants that are cultivated, and by this means render a service of general interest, the Apicultural Congress expresses the hope that means will be adopted to extend this usefulness by planting along roads and highways fruit-trees the flowers of which would be of use to bees, and the fruits from the trees food to the people.

2nd. In view of the fact that it is by practical instruction that rational methods are popularised, the Congress hopes that an apicultural station may be established on some national property at the gates of Paris, at Meudon or at Saint-Cloud, and that an apiary be established in all the primary normal schools, similar to the one in the normal school at Laval, for the instruction of practical apiculture.

3rd. The Congress expresses the hope that a section devoted to apiculture may be added to all regional exhibitions, and that at each government apicultural show apicultural products and implements be judged by bee-keepers.

4th. The Congress hopes that rates for the carriage of honey by rail may be made uniform, and that these may be lowered.

5th. In consideration of the competition of *ceresin* (ozokerit) with bees-wax, which is in consequence lowered in price, and besides, owing to its cheapness, aids in the fraud of selling it mixed with bees-wax, under the designation of the latter, the Congress hopes the Government will impose on this foreign mineral product a heavy import duty of 100 francs for 100 kilogrammes, in order to protect the national industry and prevent the fraud.

The Congress resolved that these resolutions be presented to the proper ministers to deal with them.

l. Bulletin de la Société d'Apiculture de l'Aube, No. 109, July and August, 1889.—M. G. de Layens writes in this about mead (hydromel). This is how he answers the following question, viz., Is it better to make weak hydromel (at 8° or 10°) or strong (at 15° or 18°)?

For immediate consumption a weak mead can be made, but in hot weather fermentation goes on very rapidly, and if care is not taken, the proper degree of fermentation is rapidly passed and the mead becomes acid and may turn to vinegar. In order that it may be kept an indefinite time the hydromel must be strong, but it will not acquire a commercial value until it has been kept in a cask for a number of years, being careful to cask it off into a fresh cask every year, and to keep this well filled.

The same journal gives an extract from *Mémoire sur les Miels de la Savoie*, by Charles Calloud. The author in it gives to the aromatic and colouring substance of honey and virgin wax the name of *Mélichroïne*. This is derived from two Greek words *meli*, honey, and *chroa*, colour. Melichroïne is very like the fatty colouring matter of pollen, but differs from this by forming a fatty acid after dissolution in the alkali which saponifies it. Nevertheless it is impossible to mistake the source of the fatty colouring matter of honey and wax, and it is evidently in the pollen carried to the hive by the bees, who afterwards cause it to undergo a molecular change due to the animal organization.

m. Bulletin de la Société d'Apiculture de la France, XV. year, vol. iv., No. 76, July and August, 1889.—*The Hive of the Future.* Attention! M. Reverchon

ex-registrar of 'Eaux de la Banche,' has just invented under the above title *The Hive of the Future*. Get rid, then, as fast as possible of Dzierzon, Langstroth, Cowan, Gravenhorst, and other hives, to make room for this great marvel. This is what its fortunate inventor says of it:—

'The principle of this hive dates from 1861, and has given me two large gold medals, the last one at the International Exposition of 1874, but I modified it entirely and perfected it in 1888. Friend and pupil of our great bee-keeper, the late Doctor Debeauvoys, I had the opportunity of working with him in the adaptation of frame-hives—the only ones capable of fulfilling all the requirements of bee-keeping, more especially from an economical point of view.'

The author also issues a pamphlet entitled, *Certain means of increasing one's Income by the Rational Culture of Bees, with the Use of the Hive of the Future*. In this pamphlet the inventor enumerates twenty-one advantages of his famous invention, of which number we will only mention the following:—'4th. With this hive honey is taken as easily as a fruit from a tree, and without danger of being stung (!). 6th. The work of the bees is directed at the will of the bee-keeper, in wooden frames the one independent of the others; and they are hung as one would hang a hat on a peg' (!), &c., &c.

Happy France! that at the same time becomes the possessor of three new hives—the *national standard frame hive, the hive of the Sacred-Heart*, and *the hive of the future*.—DENNLER.

BEE SWARMING IN NOVEMBER.—At Castle Hill, Inchture, on Sunday, a hive of bees belonging to Mr. Duncan, Castle Hill, swarmed. The exceptionally mild weather on Sunday, it is supposed, made the bees feel uncomfortable in their contracted winter quarters, and seek a taste of the purer air outside. It is also reported from Broughty Ferry that several hives show signs of swarming, but the owners, by judicious ventilation, have succeeded in keeping the bees within their dwellings.

NO MORE HONEY ON HAND.—The problem solved at last! No more honey on hand. Just leave it to the bees, and they will sell (cell) it for us.—A. E. B. H., *November 15th*.

BEES AS A MEANS OF DEFENCE.—'A small corsair, equipped with forty or fifty men, and having on board some bees, purposely taken from a neighbouring island, and confined in earthen hives, was pursued by a Turkish galley. As the latter boarded her, the sailors threw the hives from the masts down into the galley. The earthen hives broke into fragments, and the bees dispersed all over the boat. The Turks, who had looked on the small corsair with contempt, as an easy prey, did not expect so singular an attack. Finding themselves defenceless against the stings, they were so frightened that the men of the corsair, who had provided themselves with masks and gloves, took possession of the galley almost without resistance. Amurat, Emperor of Turkey, having besieged Alba, and made a breach in the walls, found the breach defended by bees, whose hives had been brought on the ruins. The Janissaries, the bravest militia of the Ottoman empire, refused to clear the obstacle.'—DELLA ROCCA.

REAL HONEY SOAP.—Cut two pounds of the best yellow soap into thin shavings; put it on the fire in a saucepan, with just as much water as will keep it from burning; when quite melted, add a quarter of a pound of honey, stirring it until it just boils up, then take it off, and add three-pennyworth of oil of cinnamon; pour into a deep dish to cool, and then cut into squares for immediate use; if kept it will improve. The soap commonly sold as 'honey' soap is an imposture. That here recommended will be found to soften and whiten the skin.—W. B. W.

BEE-KEEPERS' VOCABULARY;

OR, GLOSSARY OF TECHNICAL AND SCIENTIFIC WORDS USED IN WORKS UPON BEE-KEEPING.

Dollar queen.—A term applied in America to denote an untested fertile queen, bred from a pure Italian mother, not necessarily fertilised by a pure drone. The term is a misnomer, because the standard price of one dollar, which gave the name, is not adhered to.

Dome cage. (*Fr. dome*, a cupola.)—Pipe-cover cage used for confining a queen during introduction to a strange stock. See *Cage*.

Door. *n.* (*Sax. dora, dur, dure.*)—The entrance hole to a hive was so-called by old writers; also called T hole.

Dor, dorr. *n.* (*Ir. dord*, humming.)—A drone. (Arch.)

Dormant. *a.* (fr. *Fr. dormir, L. dormio*, I sleep.)—Sleeping; at rest; not in action; as bees are in a dormant or apparently lifeless state, or a state of utter inactivity, during cold weather.

Dorre. *n.*—Used by Butler and others for humble-bee.

Dorsal. *a.* (*L. dorsalis*, fr. *dorsum*, the back.)—Appertaining to the back.

Dorsal vessel.—The heart, so called because it runs along the back almost immediately beneath the external skeleton, and above the diaphragm. It is a complex tube, divided into chambers, called ventricles or contractile chambers. See *Blood circulation*.

Dory. *n.*—A drone bee. (Arch.)

Double-walled hive.—Hive constructed with an inner and an outer wall; the space between being usually filled with some material which will prevent the passage of heat.

Doubling. *ppr.* (fr. *Fr. doubler.*)—Method of working for extracted honey, by placing over a strong colony a similar hive, containing frames of comb and brood, but no bees; used by keys for, placing two hives together for one large swarm.

Down. *n.* (*Sw. dun.*)—Fine soft hair.

Draught. *n.* (*A. Sax. dragan*, to draw.)—Current of air.

Drained honey.—Comb-honey squeezed and strained through a sieve or cloth; dripped honey; dropped honey.

Drane. *n.* (*A. Sax.*)—A drone.

Dress. *n.*—See *Bee-dress*.

Dressing hive.—Preparing skeps by removing loose straws inside, and rubbing in honey with herbs, formerly supposed to be necessary for inducing a swarm to take to a hive.

Dripped, or **dript honey.** (*Sc.* fr. *Sax. drypan*, to drop.—See *Drained honey*.

Drive. *vt.* (*Sax. drifan.*)—To impel; to urge forward by force. See *Bee-driving*.

Driven bees.—Bees that have been by driving forced to leave their hive and enter an empty one.

Driving irons. Iron wires with a hook at each end, used for keeping skeps in position during the act of driving.

Drone. *n.* (*Sax. drane, dran.*)—The male bee.

Drone breeder.—A queen incapable of laying any eggs other than those producing drones; drone-laying queen.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements.)*

*** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

BREEDING BEES WITHOUT STINGS.

[2371.] In your issue of Nov. 14th you have a communication from the pen of Mr. F. H. Meggy. His wish to obtain a race of really hard-working but stingless bees is one that is doubtless echoed by many; while, on the other hand, I suppose there is hardly a single expert who troubles himself about the matter. But though this may be the case, it would doubtless be much money in the pocket of the fortunate individual who should happen to introduce that remarkable improvement (?) upon nature's work.

There can be no comparison between goats and bees. In some quarters there is a decided preference for goats without horns, it is true, but it is also equally true that many fanciers see nothing but the perfection of beauty in such ornaments, if one may so name them. For my own part I prefer to handle a troublesome goat that has horns, it is so much more easily secured.

But to come to the real points at issue, we are confronted with the fact that, while goats can be bred without horns simply by crossing with those hornless varieties that have existed from time immemorial, or even by crossing out to sheep by a more lengthened process; on the other hand, a variety of stingless honey-bees anything approaching our domesticated races does not exist on the face of the earth. The stingless bees of South America have habits and methods of storing quite at variance with our cultivated insects. Moreover, if they do not sting they have a very annoying way of settling on one's person and biting unmercifully—a habit far more irritating than the 'once in awhile' sting our present little labourers give us.

The habits of the hive bee are so far different from many animals, that we have not yet even been able to make a practical success of mating queens in confinement; and even should that difficulty be overcome, the realisation of the wish often expressed by many will remain as far distant as ever.—SAM. SIMMINS.

STANDARD BOTTLES, ETC.

[2372.] I have not written to this paper before, but have been an earnest reader now for nearly two years. And to start with may I offer a little suggestion, and that is, to advertise the *B. B. J.* in some other papers, for it was only the other week someone was inquiring if there were any papers specially devoted to bees and bee-keeping, so that shows everybody doesn't know there is such a paper as the *Journal*. I did not see the answer; it was in the *Times* and *Echo*. I see some are trying to get a standard bottle. I, for one, hope they don't get it, as I cannot as yet see the good it would do. Everyone is not going to like what a few want, and I don't say they are going to like what I want. If one can get what he likes in the shape of bottles, what has he got to bother about other people for? A judge would not be able to give any points for the get-up if all bottles were alike, and I consider that a special thing. Who is going to be troubled with bottles you have to tie up when there is a screw-cap? Leaking the screw cannot possibly do when the honey is candied or hard. I have charged 1*s.* 2*d.* per lb. for all the extracted honey I have sold up to now. If some were to get a standard *cheaper* bottle they would almost give their honey away.

I have taken the following item from a paper called *Answers*:—'When anyone tries to make you believe that a bee-hive is an emblem of industry tell him to move on. No honey-bee works over three months out of the twelve, and, comparing his size and strength with results, he is shown to be as lazy as a shop-walker.'

I think the past season has been a good one, as I have taken 100 lbs. from one hive. The black bee got it for me. It must have been a good one elsewhere, as I have seen some good reports. There is only the white clover for the bees round here, as the heather lies some six or seven miles away. I think I shall take mine another year. I noticed my bees carrying pollen the last day of October; that shows there is a queen in the hive, and they are healthy, does it not? Is the queen breeding when the bees are busy carrying pollen so late in the year? I have had both two and four bee-way sections on my hives, and they were both equally filled. Well, I think I shall have occupied enough space for once. Hoping all our bees will be alive in the spring, and wishing every success to the *B. B. Journal*, I remain—A NATIVE BEE.

BORGUE HONEY.

[2373.] My attention has been called to an artice in your issue of November 7th, page 469, by W. M'Nally, on 'Borgue Honey.' In said article, speaking of Castle Douglas show, he states *inter alia*: 'The result was that Borgue honey did not figure in the prize list. Had they topped the pole on that occasion, they would certainly have had some grounds to claim a superiority for their honey; and as the matter at present now stands any "peculiar excellence" with them remains to be proved. Very few, if any, of the exhibitors on that occasion ever had the honour of competing with their friends.'

I beg to say that Borgue bee-keepers did not enter at Castle Douglas, and consequently 'did not figure in the prize list.' Borgue has had three open competitions, viz., in 1886, 1887, and 1888, and many competitors from Ayrshire, Wigtownshire, and Kirkcudbrightshire, exhibited against Borgue bee-keepers, with the result that Borgue honey carried off *all* the prizes.

The judges in these years were in no way connected either with Borgue or with the exhibitors. Mr. M'Nally was a judge at our show in 1885, and was asked to judge also during the open competition, but was unable to come.—JOHN DUNLOP, *Secretary Borgue Horticultural Society, Borgue Academy, Kirkcudbright, November 12th.*

BORGUE HONEY *VERSUS* OTHER HONEY.

[2374.] I was more than surprised that the author of the prize essay on Borgue Honey should attribute the 'peculiar excellence' of that article to white clover. I expected to be introduced to a new bee-plant (like the 'Rocky Mountain bee-plant of America'), which we might have called the 'Borgue honey plant.' Now, if Borgue stuff was pure clover honey, I think Borgue bee-keepers would be more inclined to have their honey compared with that gathered in other districts. It seems quite evident that they are aware that their honey is not the quality, or they would have exhibited at Castle-Douglas, where they would have been in competition with honey from many parts, and tried to gain a real meritorious *honour* instead of blowing their trumpet at home, and with gratuitous advertisements. I have never yet seen a sample of pure clover honey from Borgue; and, judging from the samples I have seen, the peculiar colour and thinness belong to something else which

they would be better without. If Borgue people still think their honey superior to that gathered in other parts, let them have their honey show open to all comers, the same as at Castle-Douglas, and get three neutral judges—not natives of the parish—which is the only way to give satisfaction. It does not matter if the prizes are not valuable. It is *honour*, not money, that should be looked at.—A Stewartry Bee-keeper (*Kirkcudbrightshire Advertiser, October 18th*).

MINORCA BEES.

[2375.] Replying to your query for information respecting these bees in last week's issue of the *Journal*, I may say that personally my experience of them is not very favourable. I received one from Mr. Andreu in the autumn of '88, and in the spring of this year one was introduced into a strong stock of good-tempered blacks belonging to a bee-keeping friend a few miles from here. Another queen was also purchased in May by a bee-keeper eleven miles away, so that I have had a fair opportunity of noticing the peculiar traits in them.

The queens are exceedingly prolific, and as a consequence hives are soon full. The workers are black, very nervous, and vicious, so much so that it is quite unsafe for any one to go within several yards of the hives during 'bee weather.' They swarm very much, and are really extraordinary at sticking all up with propolis; the entrances are all barricaded with it, and every frame, quilt, dummy, &c., is so very fast that a miniature crow-bar is necessary to remove them.

Their comb honey is not amiss but for that awful propolis, and every section takes a lot of cleaning as it leaves the hive.

The race might possibly be improved by judicious breeding; but in their present state they certainly do not impart any good qualities into this country.—Chas. Howes, *Cottingham, Hull.*

EXPERIENCES.

[2376.] Now the busy season is over, I think we ought to give our experiences with regard to the various articles of necessity we had in use this season, and if any manufacturer has designed any article that has stood the test of several bee-keepers, and has proved itself to be a good and useful addition to the apiary, it will give him a chance to reap the benefit of his labours, and perhaps it will be made known to those who were ignorant of its existence. What I am going to touch on is Lee's patent sections. I have had a lot in use this season, and had all well filled, but no freer from pop-holes than the ordinary $4\frac{1}{4} \times 4\frac{1}{4}$ ins., although I used full sheets of foundation in both kinds. I used Abbott's $4\frac{1}{4} \times 4\frac{1}{4}$ ins., with saw-cut on top for inserting fondation, and consider them A1, but had used the same mode of fixing foundation before Mr. Abbott got out his letters patent, and one thing why I prefer them to Lee's is that they are not propolised half so much by the bees, even when Abbott's sections are put in Lee's frames, spaced the same distance apart. If Mr. Abbott would design a crate to take his sections in frames, without giving the bee-space at the sides, I think it would be a great boon, and the sections would come out nice and clean, and without propolis. I think we ought to study the propolisation of sections more than we do. See what a saving of time it would be in the busy season if we could scrape fifty or more sections clean in an hour, whereas often it takes two hours to make the same number look decent, and what looks worse than a stained section? I should like to hear what others have to say about the above sections, and their experiences with regard to propolisation of same, as there is a wide difference in the way bees propolise things in districts very few miles apart. For instance, I have had to lever frames up with a chisel in a hive not two miles from another that had no propolis at all in it to effect manipulation in any way.—Pat.

Echoes from the Hives.

'*Honeytown*,' *Nov. 17th.*—Having had such remarkably mild weather the last few weeks, and as it still continued so, I ventured to disturb my bees once more. Uncovering the first, in which I introduced a young queen about six weeks ago (the old one having been superceded), I found the centres of two or three combs well covered with brood, extending over a diameter of several inches. No. 2 hive was in the same condition, with the addition of more eggs. I might add that the bees seem to be very busy bringing in pollen, and have noticed them on the laurustinus.—F. J. L.

NOTICES TO CORRESPONDENTS & INQUIRERS.

M. Service.—*Mr. W. B. Webster's assertion that casts usually commence to build their combs at side of skep, and reasons for same.*—Mr. Sambels introduced the subject that he had noticed that casts usually commence comb-building at the side of the skep, and first swarms in or near the centre, but failed to give any reason for same. Mr. Webster then very lucidly explained the reason. He said:—'Casts usually being accompanied by virgin queens, are, when first hived, in a condition desiring drones for the purpose of mating with the queen, and, as a consequence, construct drone comb until such mating takes place. Drone comb will always be found at the side of a skep farthest away from the centre, hence casts accompanied by a virgin queen, or queens, will be found to construct their combs from the side, and towards the middle. First swarms, on the contrary, being accompanied by a fertilised queen, do not require the services of drones, and so commence to construct worker comb as they only then require workers, and as worker comb is always found in the centre of the hive, they must of necessity commence building in the centre.' We, and all advanced bee-keepers, agree with Mr. Webster's observations and reasoning upon this point, and no doubt you will do the same if you next season closely observe the proceedings of your swarms and casts.

N. Vincent.—1. *Prevention of Swarming.*—An absolute preventative of swarming has yet to be discovered. Swarming can be retarded to a very considerable extent by 'tiering up,' allowing the bees just too much room. Why not make artificial swarms when you suppose the bees are on the point of swarming, allowing the swarm to finish the sections after placing it in the position occupied by the parent stock? 2. *Extractor.*—The extractor illustrated is a very good one. The dimensions of the cylinder are 17 in. by any depth over 20 in.

W. Hogg.—1. *Shallow Supers.*—It is not essential that because you have used an advanced idea before you have used an antiquated one, that the latter should not be a retrograde step. Your strips of wood in conjunction with the frame tops form a 'crown-board,' which latter was long ago, and very advantageously, superseded by the 'quilt.' We should call the strips of wood between the frames 'slides,' anyway they are equivalent to such, and will be found very difficult of removal, especially in places where propolis is plentiful, which will be found to be the case in by far the majority of districts in Great Britain. Frames without bottom bars were used years ago, the bars being added after as an improvement, which will be found to be the case. 2. *Borgue Honey.*—We think that this has been definitely settled as of no superior merit to that obtained in many other districts.

Middlesex.—1. *Wax.*—Wax should never be made by fire heat, this renders it dark in colour; re-melting will never change it. Wax before cooling is always much lighter in colour than when cooled. Dark combs

make dark wax, though from the blackest combs wax can be obtained of a good colour if made by steam or a solar extractor. The 'Gerster' extractor renders it by steam. We find that wax varies in price in different localities. We have purchased it at 1*s.* per lb., and in another locality were asked 3*s.* per lb. 2. *Supposed queenless hive.*—The loss of the queen will not affect the lives of the bees, but they will dwindle in early spring. We are sorry that you have not been very successful. Try again; success is sure to come sooner or later.

F. J. L.—*Late Breeding.*—We expect this will be general this season, owing to the excessive mildness of the weather. Take care that they are well provisioned, and be sure to have plenty of quilts, or other coverings, on to guard against chills. You can do no more.

THOS. GRIFFITHS.—*Weak Stock.*—You appear to have got a weak lot by your first purchase. It is now too late for you to do anything to strengthem them before spring. If you wait till April or May before buying any more, you will do better. As a rule a beginner does best by *not* buying odd lots. After one has gained considerable experience, he may venture. Unless you are sure the hive and combs (with which you had no bees) are free from foul brood, you had better burn them. We will gladly help you in any way, but address your queries to Editor, *B.B.J.*, Strangeways & Sons.

O.—1. *Clipping Queen's Wings.*—The removal of the thin membrane of one wing will be quite sufficient. Some who practise clipping mutilate one wing soon after the queen is fertilised. The second year another is clipped, and yet another in the third. This is a ready index to her age. 2. *Shallow Frames.*—We like your suggestion of 4½ inches as the best depth for these, especially from an extracting point of view.

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By J. DENNLER,

AUTHOR OF 'HONEY AS FOOD,' 'HONEY AND ITS USES,' ETC.

Translated from the German, and Edited by

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Hunter, John, F.R.S. OBSERVATIONS ON BEES. Phil. Trans. 1792. Vol. LXXXII.

Arbuthnot, Dr. THE CONGRESS OF BEES. 1751.

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De Re Rustica. 1770.

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Editorial, Notices, &c.

THE BRITISH BEE-KEEPERS' ASSOCIATION.

In accordance with the intimation given in the last Report of the Association, a fund was opened early in the present year to enable the Committee to meet the necessary expenses attending the Exhibition held at Windsor in June last. At a recent meeting of the Committee it was resolved that, in consequence of the exceptionally heavy work and expense which the Association had been called upon to undertake during the present year, this fund should be extended for general expenses. During the current year it has been found desirable—

(1) To oppose the several Railway Companies in their proposals to obtain powers for charging excessive rates for the carriage of honey and bee-keeping appliances under the Railway and Canal Traffic Act: a still further outlay is needed under this head.

(2) To amend the rules and regulations for conducting examinations.

(3) To hold an Exhibition of Honey, &c., at Horsham, in connexion with the Bath and West of England Agricultural Society, &c.

The Committee are unable to meet their current accounts as readily as they could wish, whilst additional work, such as the printing and circulation of useful pamphlets, &c., cannot be undertaken through lack of funds.

£45 of this fund has been absorbed in the expenses attending the Windsor Exhibition. Several subscriptions have since been received, making the total amount nearly £60. This sum is, however, far short of the Association's needs; at least £100 ought to be raised. The Committee urgently appeal for support in their work. Subscriptions should be forwarded to the Secretary, Mr. John Huckle, Kings Langley, Herts.—THOS. W. COWAN, *Chairman.*

November, 1889.

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Wray, Dr.	0	5	0

JUDGING HONEY AND JUDGES.

From the varied correspondence which has appeared of late in the *Journal* on the judging of honey, it would appear that this question is worthy of due consideration. No doubt, as Mr. Chevenix states at p. 399 of *B.B.J.*, 'it would be a great advantage if in prize exhibitions of honey the judges were guided by some fixed standard;' but to no one would it be of more advantage than to the young beginner, who contemplates for the first time of 'trying his hand' in competition. With the latter complaints are frequent that he does not know the needful points for a prize sample of honey, and

very often he has to appeal to some of the 'older craft' for guidance, who are perhaps exhibitors themselves. Exhibitors of poultry, dairy produce, and such-like, know the distinctive qualifications necessary to win in competition, and so their aim is to attain these. The opinions of honey judges, however, vary so much in their decisions that it is difficult to know what honey should or should not be staged.

In 1882 the British Bee-keepers' Association very wisely adopted a standard frame, which at that time was strenuously opposed from different quarters; but notwithstanding all the opposition offered, this frame is almost universal, with the exception, perhaps, of the shortening of the top bar necessary for the simplicity of hive-making now in use. The B.B.K.A. is recognised both in this and other countries as taking the lead in all that tends to further the cause of apiculture. If they could be prevailed on to fix on a standard of points for judging honey, it would be a boon to both exhibitors and judges. Such a standard, though not compulsory, would be of some guidance to younger Bee Associations, and, with perhaps slight modifications, could be made to suit all districts.

Extracted honey would be the most difficult to adjudicate; and there being different kinds, which would require different standards of points—as, for instance, a jar of clover or flower honey, a jar of heather honey and a jar of granulated honey—cannot be easily judged in one class. Sections and comb honey there is not much difficulty with, because appearance goes with these a long way. Breaking into comb honey and otherwise spoiling its appearance is annoying to an exhibitor, and unless where there may be any doubt as to its purity need not be insisted upon.

Next in importance to the judging of honey is the selection of judges. Many committees of bee shows are very lax in appointing persons to judge who, however honest and conscientious they may be, are utterly incompetent for the task imposed on them. Nothing will hinder the prosperity of any show so much as this, because exhibitors do not care to be at all the trouble and expense of exhibiting if they do not get justice. The old adage here holds good, 'Once bitten is twice shy.' Permit me to state a case in point. I was an exhibitor at a certain show in Scotland a few years ago in a class for the best display of honey. One of the judges—a honey merchant to wit—disqualified my exhibit. For what? Because most of the honey was in 1-lb. sections and 1-lb. jars. The latter were, a good many of them, granulated. This honey-merchant judge held the sway over his colleagues, who did not feel competent to dispute his opinions, and said it was impossible for honey to *freeze*, as he termed it, the same season it was gathered, and for these 1-lb. sections they had too much of the Yankee style about them, his own fancy and trade being in large supers. The Show Committee were amazed at the decision, but could do nothing, as their rules said, 'The judges' decision in all cases to be final.' Show Committees should, therefore, in their selection of judges, see that they are, as far as possible, practical bee-keepers, who are up to all the dodges, and who are able to give an impartial decision without fear or favour.—W. McNally.

Memory of Bees.—We had placed some honey on a window. Bees soon crowded upon it. Then the honey was taken away, and the outside shutters were closed, and remained so the whole winter. When in spring the shutters were opened again, the bees came back, although there was no honey on the window. No doubt they remembered they got the honey there before. So an interval of several months was not sufficient to efface the impression they had received.—Huber.

BEE-KEEPING FOR COTTAGERS.

VII.

Feeding.—Upon the treatment stocks receive from the close of the honey-flow to the time when they are packed for winter depends, to a very great extent, the amount of profit they give the bee-keeper the following season.

Our object in feeding is not, as is often supposed, simply to keep the bees alive. Feeding should be so managed in the spring, and also immediately after the honey-flow, as to be the means of producing an increased number of bees at the commencement of the honey-flow and again when packing for winter. To obtain this object the supply must be slow but continuous, so that while the bees receive a sufficient supply for feeding the grubs, they are not able to prevent the queen using the cells by storing any large amount of surplus.

About the middle of September all stocks should be carefully examined to find out their general condition, as well as to ascertain whether the supply of food is sufficient to carry the bees well through the winter and spring. If, on examination, the stores are short, syrup should be given *warm*, and as fast as the bees will take it, until they have in skeps from 12 to 15 lbs., and in bar-frame hives from 20 to 30 lbs. stored.

The necessity for feeding stocks in skeps, where feeding is not generally practised, will not be as great this season as it was last; still, if they have been properly supered, as recommended in a previous article, they would, at the close of the honey-flow, contain but little honey and a large amount of brood. When such is the case, breeding by slow feeding should be kept up until the middle of September, when any further amount of stores necessary hould be given by rapid feeding.

What to Feed.—The different forms of food recommended are *syrup*, *candy*, and *dry sugar*. *Pea-flour* should also be given when there is a scarcity of pollen. The best cane sugar only should be used in the preparation of syrup and candy; and Porto Rico, or some similar pure, soft sugar, should be used for dry-sugar feeding.

Various recipes are given for the preparation of syrup and candy, but the following are the simplest and most easily remembered:—

Syrup.—Thin syrup for *spring* or *slow* feeding: 3 lbs. of sugar to 1 quart of water.

Thick syrup for *autumn* or *rapid* feeding: 6 lbs. of sugar to 1 quart of water.

In either case put the water into a pan on the fire and add the sugar. Stir occasionally, and remove when the sugar is dissolved.

Candy.—For winter feeding when stores are short. The following are the directions for making candy as used by the Editor:—

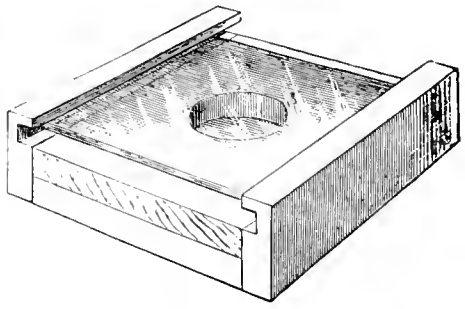
'Use a tin saucepan, and put into it ¾ pint of water. When this boils, gradually stir in 6 lbs. of white lump sugar. Keep it boiling until every particle of sugar is dissolved, and stir continually to prevent its burning. Should it become burnt, no amount of boiling will make it set hard. To test when the boiling is sufficient, drop a little of the boiling sugar on a cold plate, and if it sets tolerably hard on cooling, being at the same time just sticky, it is done enough. Boiling too much makes the candy hard, and it remains soft if not boiled enough. When it is just right, take it off the fire, and stir until it begins to set. It can then be poured into saucers, in which pieces of paper are placed to prevent the sugar sticking to them.'

How to Feed.—*Slow feeding* should be either by the use of syrup or dry sugar.

In the spring, say about March, stocks should be examined, and, if necessary, feeding commenced. The

first step with stocks in bar-frame hives is to bruise the cappings of the upper part of the combs. The honey or syrup is then removed, and brood-rearing encouraged. In the spring syrup is to be preferred to dry sugar for stimulative feeding. The bee-keeper must always bear in mind that as the food now given is solely for brood-rearing, the supply must be regulated. The quantity required by each colony cannot be determined except by the bee-keeper, who knows its strength. A strong colony might at first have half a pint of syrup every third night. With bar-frame hives a slight examination might be made on a warm day at noon after the feeding has been in progress for some time, and then the further feeding necessary will he easily arranged.

A simple feeding stage is here shown which almost any bee-keeper can make or get made for a few pence. The bottle to contain the syrup may be a 1-lb. honey jar, over the month of which should be tied muslin or cheese



White's Simplicity Feeding Stage.

cloth; or a 1-lb. screw-cap jar would be found simpler. If a dozen or eighteen holes be pricked with a needle in the cap, the bees would quickly take down the syrup while warm, and it would be ready and at the proper temperature for their use at any time. The bottle should be inverted on to the glass, and then held loosely exactly over the hole in the stage while the glass is withdrawn. In removing the bottle it should be slightly raised while the glass is slid under it, and thus no bees escape.

To ensure a regular supply various graduated feeders, similar to one introduced by Mr. Abbott many years ago, are used—an excellent sample of which was designed by the late Rev. G. Raynor.

The stage having been placed over the feed-hole, the bottle should be filled and the index pointed to the figure on the stage, which corresponds with the number of holes through which it is intended the bees should take their food.

In the spring great care should be taken in regulating the supply, so that when the storing of surplus commences there may be no syrup left.

(To be continued.)

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

Committee meeting held at 105 Jermyn Street on Tuesday, Nov. 19th. Present—T. W. Cowan (in the chair); Hon. and Rev. H. Bligh, Rev. R. Errington, Capt. Campbell, Capt. Bush, R.N., J. Garratt, Rev. W. E. Burkitt (*ex officio*), W. O'B. Glennie (Treasurer), and the Secretary. Letters were read from the Rev. Dr. Bartrum, Rev. J. L. Seager, and Mr. McClure, regretting their inability to be present.

The minutes of the last meeting were read and confirmed.

The Secretary reported that he had received a communication as to what terms the lantern slides belonging to the Association might be hired for lectures. Resolved, 'That 2*s.* 6*d.* per dozen be charged for the use of the slides for one night's use, and half rates for a second night. Members of the Association to be charged half these fees.'

The Educational Sub-committee submitted their report, recommending that the regulation in regard to candidates' certificates being granted for five years only be struck out, but that such certificates shall be forfeited at any time on proof of dishonesty. Resolved, 'That the recommendations of the Sub-committee be adopted.'

The Prize Schedule, together with the rules and regulations for the Bee Department of the Royal Agricultural Show to be held at Plymouth next year, were finally approved.

It was resolved that the Annual General Meeting of the Association should be held on Tuesday, the 18th day of February next, subject to the approval of the President.

IRISH BEE-KEEPERS' ASSOCIATION.

A meeting of a sub-Committee of the Irish Bee-keepers' Association, appointed to frame a standard for judging honey, was held at 9 Merchants' Quay on 19th November.

After considerable discussion, it was unanimously resolved to recommend the following standard:—

Honey Sections.

*Get up. Not including ornamentation	20
†Completeness and evenness of comb	15
Completeness and colour of sealing	15
Uniformity, *i.e.*, similarity between sections making up exhibit	10
Colour of honey	5
¶Flavour	15
Aroma	10
Consistency	10

* It is recommended that an extra prize be given for for the best decorated section if up to seventy-five marks, economy and originality to be taken into consideration.

† The comb must be properly within the section.

Run Honey.

Get up, including ornamental label	20
Colour	5
Consistency	20
‖Clearness or brilliancy	15
Uniformity, *i.e.*, similarity between items of exhibits	10
¶Flavour	25
Aroma	5

‖ A smaller number of points to be taken off for candied specimens, or honey with air-bubbles, than for honey with specks of wax, propolis, or other foreign matter.

Candied Honey.

Get up, including ornamental label	20
Evenness of candying...	20
Colour	10
Uniformity, *i.e.*, similarity between items of exhibits	10
Flavour	35
Aroma	5

¶ The judge need not break sections or open bottles which do not approach within 30 marks of that which on other points seems likely to take the lowest prize.

ULSTER BEE-KEEPERS' ASSOCIATION.

This Association, which is now in the eighth year of its existence, is in a very flourishing condition. It has a roll of one hundred and twenty-five active members, all using bar-frame hives, and managing their bees on the most improved modern system. But there are only a few

of the bee-keepers in the counties of Antrim, Down, Derry, Armagh, and Tyrone, who have adopted this method. There is scarcely a parish in the north-east of Ireland in which there is not an enthusiastic and well-informed bee-keeper. And the manifest effects of this are that in nearly every town in Ulster it is possible to buy sections of, and extracted, honey of the best kind, and got up in most marketable form; while in the city of Belfast, where the Ulster Bee-keepers' Association has its head-quarters, most of the respectable grocers do a good business in honey, and one house finds it so lucrative as to make it a specialty, and at the last committee meeting of the Ulster it was announced that arrangements had been made to open a depôt for the sale of members' honey at Messrs. George Dixon & Co., florists, Royal Avenue, Belfast. This is an additional good move, and will afford the public a guarantee for the quality of the article they purchase.

WOTTON-UNDER-EDGE BEE-KEEPERS' ASSOCIATION.

On Wednesday week the annual dinner of the above Association was held in a large room kindly lent by Messrs. Penly, near the Star Inn, Mr. and Mrs. Gabb, of the latter house, being the caterers. Mr. V. R. Perkins, the president of the Association, presided, and the visitors included the Revs. F. W. Waite (curate of the parish), J. Hardyman (Old Town Chapel), W. Davy (late Baptist Chapel), and the following, whose names will show how widely bee-culture is taken up, were present, most of whom are members—Messrs. A. J. Brown, secretary; Griffin, Shearman, G. Parker (Ozleworth), Embley, Cullimore (Alderley), Hulance (Alderley), Jesse and W. Fowler, Venn, Glen Parker (Alderley), G. Parker (Wotton), Millard, J. Davis, Gunston, W. Teagle, H. Owen (North Nibley), W. Ellery, G. Dauncey, E. Parker, W. Hall, W. J. Vigor, and G. Summers. After the removal of the cloth the loyal toasts were honoured. The president gave the success of the Association, in doing which he said he had put a few notes together, which he would like to read, as an epitome of the doings of the Wotton-under-Edge Branch of the Gloucestershire Bee-keepers' Association from its commencement in 1884, from which we give a few leading statistics:—In that year the county and with it a local branch were started. The latter was brought about in this way: The hon. general secretary, when here on different business, heard that he (the speaker) had a collection of bees, and, presenting a letter of introduction, asked to see them. No doubt he expected to see some well-stocked hives of Ligurians, which were then all the fashion, but his disappointment must have been great when he told him that his bees were not honey bees, but simply a collection of wild insects stowed away in a cabinet. Nevertheless he was shown his collection, and he was greatly interested; and as their talk was on bees the County Association was spoken of, and Mr. Perkins promised to try to start a local branch. The result of a lecture was that half-a-dozen joined at once, and a dozen members on the 1st May of the following year took stock of their belongings, which were eighteen straw skeps and twelve bar-frame hives. During the season they had twenty-seven swarms, and the year was very favourable, and at the end had taken little short of 700 lbs. of honey. As the autumn advanced most of them tried their hands at driving and manipulating bees, with satisfaction to themselves if not to the poor insects. At the Gloucestershire Agricultural Show that year there was an exhibition of bees, appliances, and a honey fair. Three of their members tried their luck, Messrs. Brown, Griffin, and Shearman, for hive-making, and Brown showed honey. Griffin gained 1st prize, Shearman a 2nd extra. Brown was commended, and got 3rd for his honey. The work, interest, and progress of the society were given for the subsequent year, 1886, which was somewhat unfavourable, and the County Show being at Cirencester, was considered out of reach. Having traced the history of the society through 1887, the chairman said 1888 was a cold and cheerless summer, without a ray of hope; the maintaining of bees an anxiety, and the honey crop a failure. 1889 started badly. Members were reduced to thirty, stocks diminished, but the barometer began to rise, and a cheery spring and warm summer restored their hopes. At the flower show their tent was an attraction. Mr. Appleton, of Bristol, and Mr. Devonport, of Stourport, acted as judges. The latter gentleman, with Mr. Brown, lectured on manipulation. They showed about 7 cwt. of honey, all made in the neighbourhood. There were also observatory hives stocked with bees. Honey found ready sale. Prizes were offered in eleven classes, and medals awarded as follows:—Class 1, open, 1st prize, a silver medal for best exhibitor of honey, Mr. Griffin; 2nd, W. Brown. Class 2, for best twelve sections of comb honey, Mr. Griffin. Class 3, best twelve bottles of honey, 1st, Mr. Gunston; Miss North and Mr. Venn, 2nd. Class 5, bees-wax, Griffin, 1st; Fowler, 2nd. Cottagers' Class:—Class 7, Mr. Gunston, for exhibition of honey, silver medal. Class 9, bottles of honey, 1st, Gunston; 2nd, Griffin; 3rd, Jellings. Class 6, best observatory hive stocked with bees, money prize and certificate, 1st, H. Owen; 2nd, Brown. Class 11, medal for best bar-frame hive, 1st, bronze medal, Mr. Griffin; 2nd, with certificate, Mr. Brown. This little epitome, the chairman said, showed the ups and downs of bee-culture, and with the toast of success to the Association he mentioned the names of Mr. Griffin and Mr. Gunston, both of whom suitably responded. The chairman then, on behalf of the society, presented their hon. secretary, Mr. A. J. Brown, with a portrait of himself in gold frame. Mr. Brown feelingly responded. A vote of thanks to the chairman and the health of the visitors were responded to humorously and appropriately—in lessons from bees and their meeting—by the Rev. W. Davy and Rev. J. Hardyman, who spoke on his experience of bee-keeping also; and Rev. F. W. Waite. Singing, interspersed, helped a profitable and pleasant evening. Thanks to the host and hostess were given by the Rev. W. Davy.—*Dursley Gazette, Saturday, November 23rd.*

HARRINGTON, CUMBERLAND.

We are pleased to see that Mr. E. McNally is exerting himself to some purpose in Cumberland. Last winter he gave a descriptive lecture on 'Bee-keeping,' which proved of such interest that it was determined to expand the idea into an exhibition of the arts and industries of the locality, making bee-keeping a leading feature. This exhibition was held last Thursday week, and was a great success. We append a report of the

Apiarian Section.

The entries in this section were not numerous, but were a fair sample of the bee-keeping resources of the district. Class 10 was the only one open to all competitors. The premier medal was won by the Harrington Co-operative Society, of which Mr. E. McNally is manager. This exhibit contained a great variety of honey in varied forms and marketing styles, and also an assortment of confectionery, biscuits, cakes, wines, medicines, &c., in all of which honey was a special ingredient. In the front of the exhibit was suspended a beautiful memorial diploma, recently awarded to Messrs. E. & J. D. McNally, for their exhibit at the Glasgow International Exhibition. In Class 11, for Amateur's Hive, the first prize was won by Mr. James Clark, gardener, Distington. This hive was made from a teak-wood tea-chest, polished, dovetailed and finished throughout in a most careful manner. The second prize was awarded to Mr. Philipson, of Keswick, with a storifying Woodbury hive,

In the honey classes Mr. Clark again carried off the chief honours, Mr. James Finlay, of Hensingham, one of our rising amateurs, following very closely. Among the exhibits staged was a choice collection of appliances—Renfrewshire, Stewarton, tiering, and improved skep hives—exhibited by Mr. William McNally, Glenluce, N.B. Mr. Philipson, of Keswick, exhibited a feeding cushion arrangement, which received considerable attention, and is an invention which we feel certain will ere long become better known. Mr. David Galloway exhibited a well-made Combination hive. Mr. E. McNally filled up all the vacant spaces with his well-known collection of bee-diagrams, bee-flowers, &c. Mr. Largiuson, of Keswick, acted as judge, and his awards gave the utmost satisfaction. Many of the leading Cumberland bee-keepers visited the exhibition during its three days' duration; and on the suggestiou of the Rev. H. D. Rawnsley, of Keswick, it was arranged to have a meeting early in January to take steps for getting up an annual show in Cumberland.

Awards.—For the Largest and Most Interesting Collection (open to all)—Silver Medal, Harrington Co-operative Society. Bar-frame Hive made by Amateur—1st, James Clark; 2nd, R. Philipson; 3rd, James Finlay. Six 1-lb. Selections Comb Honey—1st, James Clark; 2nd, James Finlay; 3rd, David Galloway. Sample Heather Honey—1st, James Finlay. Six 1-lb. Jars Run Honey—1st, James Clark; 2nd, James Finlay. Six lbs. Run Heather Honey—1st, James Finlay. Two Bar-frames Comb Honey—1st, Edward Dryden. Display of Run Honey—1st, John Hall, Wigton.

ESSEX BEE-KEEPERS' ASSOCIATION.

We are pleased to hear that Mr. E. Durrant, lecturer to the above Association, will deliver a lecture on bee-keeping on Tuesday, 17th December, to be entitled, 'Bees and Bee-keeping, or an Evening with the Honey Bees.' The lecture will be fully illustrated with magic lantern, slides, hives, and other apparatus, which will be lent for the occasion by the Hon. Local Secretary and adviser, Mr. W. J. Sheppard, of Woodford. The chair will be taken at half past seven o'clock by Mr. Henry J. Cook.

GLOUCESTERSHIRE B.K.A.

A Special and General Meeting will be held at Rev. S. E. Bartleet's, St. Mark's Vicarage, 50 London Road, Gloucester, on Tuesday, December 10th, at 3 o'clock: to wind up the affairs of the Central Committee; to dispose of the assets; to distribute the effects.—William David Slade, *Hon. Sec., Nov. 25th.*

BEE-KEEPERS' VOCABULARY;

Or, Glossary of Technical and Scientific Words used in Works upon Bee-keeping.

Drone brood.—See *Brood drones.*

Drone comb.—Combs with large cells, in which drone brood is reared.

Drone eggs.—Eggs which produce drones.

Drone foundation.—Comb foundation impressed with the bases of drone cells.

Drone-laying queen.—See *Drone breeder.*

Drone massacre, or **slaughter.**—The destruction of the drones which takes place at the end of the honey season.

Drone pot.—Name given by Butler to a drone-trap.

Drone-trap.—A trap generally placed at the entrance of a hive for catching drones, and consists of a cage of wire or perforated zinc which, while preventing the drones, allows the workers to pass freely.

Dronie.—To have drones; to breed drones. (Arch.)

Droning time.—The season at which drones appear. (Arch.)

Dronny. *n.*—A drone. (Arch.)

Drony.—To contain or breed drones: 'Therefore some stalls do not drony before Cancer.'—Butler.

Dropped honey.—See *Drained honey.*

Drum. *v. intr.* (*Du. trom.*)—To beat on the sides of skeps with sticks as in driving bees.

Drumble-bee.—A humble-bee. (Arch.)

Drumble-drone.—A drone. (Arch.)

Drumming bees.—Driving bees, by beating on the sides of the hive with sticks.

Dry feeder. (*Sax. dri, drig*, or *drygg*, and *fedan*, to feed.)—An appliance used for furnishing bees with dry sugar for feeding.

Duct. *n.* (*L. ductus*, fr. *duco*, I lead.)—A tube or canal by which a fluid or other substance is conducted or conveyed in the body.

Ductile. *a.*—Flexible; pliable.

Ductus ejaculatorius.—Latin name given to that portion of the male organ forming the duct between the mucous glands and the bean.

Dumbledore. *n.*—A humble-bee; an imitative word allied to *boom*, to hum. (Prov.)

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to Mr. J. Huckle, Kings Langley, Herts (see 2nd page of Advertisements.)

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

'BEES AS A MEANS OF DEFENCE.'

[2377.] That's a very fine story you give us, but is it true? There are so many stories of that kind, that I put very little faith in it. I copy from a Norwich paper (*Daily Press*) a letter—August 1st, 1883—which I think your readers will admire much:—

'Sailor Bees.

'*To the Editor.*

'Sir,—In your impression of to-day Mr. Lawson Sisson appears to deprecate the possibility of bees travelling in a cask. The following incident may go to show how very migratory they are:—On the outward bound s.s. *Kiko*, from Southampton to Australia, *viâ* Cape of Good Hope, whilst at sea, three swarms of bees were discovered clustered in the rigging. Our surprise was very great, as the sails had been furled and unfurled many times since leaving port. The only conjecture we could arrive at was that they had come on in the night, seeking a harbour of refuge in our ship. They were all successfully hived in three casks, and appeared contented till we reached Capetown, where they were given away to three separate persons, who lived in different parts of the country. After being in Australia some

months, on our return voyage we called again at the Cape for orders, only staying a few hours. Next morning, strange to say, the first officer reported to the captain, "Bees on fore-rigging," and, sure enough, there were three swarms again, and no doubt the same that we had set ashore. This goes to show that bees, like rooks, never forget a former habitation.—I am, Sir, yours, &c., ST. GEORGE SAVILLE.

'*The Close, Norwich, August 1st*, 1883.'

My answer to this appeared next day, thus:—

'SAILOR BEES.

'*To the Editor.*

'SIR,—I did not "deprecate" (whatever dictionary meaning of that word Mr. Saville intends) the possibility, &c. I saw no reason to doubt the story of a swarm in an ale-cask. I have even heard of swarms settling on a ship. But that steamship, with its euphonious name "*Kiko!*"—that goes beyond, in romance, anything I ever heard. Three swarms in rigging—hived in three casks, appearing contented therein—given to three separate persons (of course the persons were not joined, as they lived in "different parts of the country") and that country Africa!—that big country where, as Artemus Ward truthfully observed, were to be found "the white rose, the red rose, and the negrose." And then those "migratory bees," after the "*Kiko*" had steamed, with "sails furling and unfurling," on to Australia and back to the Cape, to leave their three separate owners and their tubs, to cling again with loving tenacity to the well-remembered rigging of the "*Kiko!*" Oh, it's quite affecting! And how did they behave when they reached their native land? Did they take the train from Southampton, or how did they get back to their mother hives, if there was only land-carriage available? And what of *Kiko*, the bee-rigged? Was it "disposed of" to "Baron Munchausen" as his private yacht, and did he change its name to *Veritas?*—I am, Sir, yours truly, 'J. LAWSON SISSON.

'*Edingthorpe, August 2nd*, 1883.

'P.S.—The groundwork of the story of "*Kiko*" is to be found in *Land and Water*, December 15th, 1879. I can only wonder that it was admitted by the editor of that paper.—J. LAWSON SISSON.'

The editor of the *Eastern Daily Press* says:—'Mr. Lawson Sisson cannot believe Mr. St. George Saville's story about the bees. It is very clever. It is only paralleled by some remarkable tales about the virtues of Lowestoft sea-air and sea-water, told in a little *brochure* just published by Messrs. Jarrold, entitled *Johnny and Jenny*. Mr. St. George Saville would prove a formidable rival to Mark Twain or Artemus Ward.'

CROWN-BOARDS AND HIVES.

[2378.] In your issue of the 21st inst. you say, in answer to W. Hogg, 'Your strips of wood in conjunction with the frame tops form a "crown-board," which latter was long ago, and very advantageously, superseded by the quilt.' I do not know the precise form of Mr. Hogg's crown-board, but I venture to take exception to your *ipse dixit* that the crown-board has been superseded by the quilt with advantage. I am gradually weeding out quilts from my hives, and superseding them by crown-boards. Quilts are at best a nuisance, a harbour for moths and all sorts of crawling creatures, and require considerable care in fixing. A crown-board, if properly made, is handy, and far less trouble, and offers a better protection than any number of quilts, besides reducing propolisation to a minimum. I sin in good company in preferring the heterodox crown-board to the orthodox quilt, as that veteran bee-keeper, William Carr, has, I believe, never used anything else. In addition to its other advantages, the crown-board naturally provides a 'Hill's device,' by leaving a ⅜-in. space over the frames, thus rendering unnecessary the mixture of barrel-hoops and iron to form the 'bustle' arrangement used by some bee-keepers. I find that my bees consume their stores to the top of the frame, and then pass over to the other side.

I have said that a crown-board should be properly made, and perhaps I ought to add that the hive must too. I use single-walled hives, and find them handy, light, and satisfactory. At some time, if you will permit me, I may describe the hive I use and its crown-board, and send you a sketch.—THETA, *Withington, November 21st.*

[*Chacun à son goût.* We advise as our experience proves best. Crown-boards were superseded by quilts, not in a single instance, as you quote, but by thousands, we might almost say millions. Quilts, as you write, harbour moths. We have yet to find all other 'crawling things' in them, where the apiarist pays little or no attention to the bees. We care not to advise such bee-keepers, as with them nothing is of service. We will quote but one advantage—there are plenty more—that of removal of quilts. Using a quilt one can uncover a single or any number of frames at one examination without materially disturbing the remainder, thus having only a portion of the hive to contend with. There is no jar caused by peeling off an enamel quilt, which is always the case with a crown-board, no matter how well made or carefully removed; less stings; no cessation of work by the disturbed bees for hours after. We should be pleased to read the description of your hive, but we are afraid that, as it is single-walled—query, how thick?—it will find little favour in this variable climate of ours.—ED.]

A SCOTCH LADY BEE-KEEPER'S EXPERIENCE.

[2379.] I must clasp in friendship the hand so kindly extended across the Atlantic, and tell something more of my bee-keeping. Mrs. Harrison will read it, I know, though she may find it somewhat akin to the minister's sermon, 'neither edifyin' nor divertin'.' I left off last when we had placed our first bar on its stand. The weather was lovely, and in eight days all the combs were drawn out and well filled with honey. We placed over them a crate of sections, which were filled and sealed perfectly, and, being the first in our vicinity, were greatly admired. We invested in other two bars (larger and better in every way than the Woodbury), into which we put our second and drummed swarms. All three wintered well, and with them, and a skep we had bought, we commenced the season of '86, and finished it with seven bars, all in good condition.

We had nearly 200 lbs. of honey, for which we got a good price, and our little workers now

'Look the whole world in the face,
For they owed not any man.'

I was very proud, and looked hopefully forward to '87. All our bars wintered well, and not wishing to increase our stocks by swarms from our bars, we bought a skep, and had at the end of the season twelve bars (some of which were driven bees), and over 500 lbs. of honey in comb and extracted. We had bought an extractor, or rather shared in the buying of one with a lady (whose photo, Mr. Editor, we hope to see by-and-by among the eminent bee-keepers of your *Journal*) who luckily had taken the bee-fever about the same time as myself. I may say, in passing, there was no name or patent on the extractor, but it was simple and efficient; and though there were many broken combs, it was through our being novices at extracting, and the combs being very heavy, some weighing from nine to twelve pounds.

We have doubling or storifying boxes for all our hives, and fill them with seven frames of sections, or what I prefer (now we have the extractor) seven double frames.

As I never have seen the plan mentioned in your *Journal*, I may just say how we proceed. We lay a brood frame on the table, place on it a sheet of foundation, then another frame; tie the frames tightly together at both shoulders and sides, close to under bar; when filled they hold from nine to twelve pounds of honey, and you have only the cost of one sheet of foundation, and only to uncap two sides of comb when extracting, whereas in using single frames you have two sheets of foundation and four sides to uncap for same quantity of honey. A few minutes will tie in as many as fill a storifying box. Ours hold seven double and one single frame. Before the honey flow commences we like to have in each hive nine brood frames and two double frames, one at each side, well crowded with bees. When the honey is being carried in abundantly we put on the storifying boxes, lift up the two double frames, and a single one, bees and all, giving empty combs (of which we always have plenty) in their place, filling also the upper box with empty combs. This in a great measure prevents swarming, the empty combs above and below giving plenty of work. We leave on the upper boxes the feeding stages, for ventilation, all through the summer.

But I have already written by far too much; some other time I may tell something of our quilts, feeders, dummies, &c.—A Scottish Cousin.

SINGLE-WALLED HIVES.

[2380.] My attention has been drawn, by a total stranger in Ireland, to a letter by 'Amateur Expert' in the *Bee-keepers' Record* for November, in which, after quoting my remarks about small frames for tiering, he says, 'They are not nearly such a fad as my single-walled hives. Shallow frames have not been yet thoroughly tried, and I contend that with stocks as strong as all *well-wintered* bees are, they seem to me to be unnecessary, when they can fill ten frames of standard size in some four days.'

Perhaps 'Amateur Expert' does not manage to winter his bees well in his double-walled hives. In my half-inch hives I do not find ten standard frames too many.

I do not know who 'Amateur Expert' is, although I have often read his letters in the *B.B.J.* with interest; but I think as my remarks were addressed to the readers of the *B.B.J.*, he might have answered me through that paper, and not have given me a 'stab in the dark' in a paper I have never seen before.

I have mislaid the *Record* sent me, or would have written to that journal also, but perhaps 'A. E.' will kindly see that this is reproduced in it. I purposely quoted *results* in my letter to the *B.B.J.*, as it shows at once that my bees must have been well wintered.

My Irish correspondent states that his bees winter *better* in single-walled hives, and that has always been my opinion; but it was difficult to prove, perhaps, so I did not state it, but an authority like Mr. Simmins recommends them, and since my letter appeared Mr. Howard, of Peterborough, wrote me, 'Your experience of single walls same as mine.'—Arthur J. H. Wood, *Bellwood, Ripon, Nov. 23rd.*

SHALLOW FRAMES.

[2381.] Not having seen any reply from users of shallow frames to your inquiry about same, except one from a manufacturer, and one recommending about five or six inches deep, without mention of any advantage attaching to this depth, I would give my reasons for preferring 4½, as I use them:

1. A box of them occupies the same depth as a rack of sections in the hive.

2. Two 4½ frames fit in each side of an ordinary extractor. These two considerations were sufficient to decide me.

3. At the end of the season the combs will do—those untouched by the queen for tying into sections, three to each frame—the others for 8½ brood combs, two shallow ones to each 8½ one.

4. A tier of them over the brood chamber gives the queen room enough without entering sections.

5. They give about 2½ to 3 lbs. of honey apiece, quite a large enough proportion of run honey for any market.

6. Then the boxes for them are just a good height for raisers for brood-combs for the winter, raising them about 4½ inches from the floor-boards, and if made about 16×16 inches, fit nicely over a ten-frame hive. (Our standard length of top bar is 16 inches)

Method of using.—When the bees have taken possession of the first rack of sections, a box of nine frames supplied with starters of super foundation, and spaced about 1¾ inches from centre to centre, is placed between brood-combs and sections, where it is left till the close of the honey glut, the racks of sections being tiered as the bees will occupy them above. Perhaps I should have mentioned as another advantage of these shallow frames the ease with which they are uncapped, particularly virgin combs freshly built each season. Hoping the above may prove useful to your correspondent, or provoke others to write of better size or better method.—Matthew Henry Read, *Clonoughlis, Straffan, 8th November*, 1889.

SALE OF HONEY.

[2382.] I think those of your correspondents who are bee-masters with a view to profit may find useful the following extract from a letter I have recently received from a member of a leading Manchester house which has recently been a large buyer of honey in this neighbourhood:—

'Our great customers,' he says, 'are the wholesale druggists who use run honey as a basis for their various compounds. Our principal customer gets through about a ton annually, and I hope that we shall sell him enough to arrange for this quantity another year. The sections do not move so easily. I am sure that *pure run* honey will command a sale, slow at first, because so many persons adulterate the raw material with flour. We have no difficulty in placing ours with those who once try it.'

I may explain that the last sentence refers to the honey which Manchester has this year received from this part of Herts.—Henry F. Burnaby, *Buckland Rectory, Buntingford.*

A CORRECTION.

[2383.] In a communication from Mr. Whittle (2362), he says, 'By-the-bye, we have a capital arrangement connected with our County Association, viz., the county is divided into districts, and in each district an agent is appointed to sell the members' honey.' Will you allow me to say that this statement is not quite correct? It is true that the county is divided into districts; it is true also that agents are appointed, these agents being tradesmen, who undertake to sell honey bearing the Association label, it being left to members to make their own arrangements with agents. But agents are not appointed to sell specially the honey of the district, nor is there an agent in every district. We have indeed thirty districts, but only agents in six, while there are several agents beyond the county borders, and as a matter of fact the district system has no reference to the honey agencies. Many of the districts are purely rural, while in most of our small western towns there is little shop-demand for honey. The agents are chiefly in the large towns in the east, and the object has been to give the rural districts the advantage of the town trade. That the effect has had considerable success is without doubt;

as I hear of considerable quantities of honey going from the western end to the eastern at prices more than half as much again as that quoted by your correspondent. The 'Berkshire Bee-keeper,' for October, writing upon the subject, says, 'As a matter of fact, our agencies have been made use of this year by all classes, from gentlemen of title and high position in the county to the humble cottager, and this was just as it was intended it should be.' Why Mr. Whittle has not participated therein it is not for me to say, but to any one who knows Wantage, the expectation he appears to have had of selling close upon 800 lbs. of chiefly section honey therein will probably suggest a sufficient reason.—ARTHUR J. WALLIS, *Hon. Sec., Wantage District, Berks B.K.A.*

DO HUMBLE BEES EVER SWARM?

[2384.] Do humble bees ever swarm? That is a question which most, if not all, your readers would say no to, but I can prove that, in their own way, they do, as will be seen by the following.

Some years ago, when going to school along a field side, near a wall, I saw a humble bee of almost a brown colour fly into a little hole under a tuft of dead grass. This I knew must certainly be a humble-bees' nest; so having obtained a box in which to put it, I proceeded to turn up the sod. Imagine my surprise on finding in the centre of the nest about a score small humble bees clustering round the queen, which I could easily distinguish by her tremendous size compared with the other bees. What was most surprising is that there was not a scrap of comb or brood in any shape or form. The nest (or rather the beginning of one) I took away in as complete a form as possible, together with most of the bees, including the queen, and placed them in a shady spot in the garden. But they did not stay long, and in less than two days there was not a bee left in the box. I also noticed they had not gone back to the old spot, which I fancy I must have upset too much for them to start again.

Can any of your readers explain, if those bees had not swarmed from the parent stock, how they got there, seeing there was no brood?—DARCY R. GRIMSHAW, *Crag Hill, Horsforth, near Leeds.*

Echoes from the Hives.

South Cornwall, Nov. 25th.—Bees have worked vigorously on ivy up to date, but for a fortnight they have been far outnumbered by young queen wasps; so we know what may be expected next year.—C. R. S.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

J. CLIFFORD.—*Moving Bees.*—Wait until the bees have been confined to their hives by six weeks of uninterrupted winter weather.

INQUIRER.—1. *Ventilator.*—These are simply holes (three-quarters of an inch) bored in front of hive, under the eaves, with a piece of perforated zinc nailed over same inside.—2. *Ligurian Carniolan Cross.*—These, as a rule, are very well-mannered bees; but we prefer for work Ligurian black, having found them to store more than any other variety we know of, while their temper, the first-cross, is as good as most other varieties. We allude to the Ligurian queen mated with black drone.

INITIUM.—1. *Making Hive.*—See *British Bee Journal*, July 4th and 25th of this year. Grocers' cases are mostly very unsuitable, the only ones of any service being Huntley & Palmer's 'lunch' boxes; but these are charged at 3*s.* each. You could buy the wood in the plank for less than that. 2. *Foundation.*—Full sheets.

CRUST.—1. *Clover.*—We have never tried wood ashes as a top dressing for the especial purpose of growing clover, but they are a capital fertiliser. Have you tried Melilot clover? It is a gross growing plant, and not much use for feeding off, but capital for bees. 2. *Creeping Plants.*—Scarlet-runners are first-class if you get them early.

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BY J. DENNLER,

AUTHOR OF 'HONEY AS FOOD,' 'HONEY AND ITS USES,' ETC.

Translated from the German, and Edited by

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Editorial, Notices, &c.

EMINENT BEE-KEEPERS.

No. 17.—AMOS IVES ROOT.

Prominent among the numerous 'eminent bee-keepers' the United States has produced is Mr. Amos I. Root. He is well known to bee-keepers of both hemispheres for his ability as a writer on apicultural subjects, as a man of keen commercial instincts, and as a sincere Christian. We have much pleasure in introducing him to our readers. The following biography is written by Mr. Ernest R. Root, the eldest son of Mr. A. I. Root.

AMOS IVES ROOT.

A. I. Root was born on December 9, 1839, in a log-house about two miles north of his present business plant. He was a very frail child, and his father had little hopes of raising him, although the neighbours assured him that his wife would not let him die. As he grew older his taste for mechanics and gardening became apparent. Among his early hobbies were poultry, windmills, clocks, electricity, chemistry, &c. He did not take kindly to feeding pigs, or, for that matter, general farmwork, although he took particular delight in gardening. One of the jobs which he disliked was churning. Accordingly, to appease his mechanical turn of mind, and at the same time to relieve himself of an irksome task, he constructed a windmill. This was attached to the churn, and the latter, in obedience to the wind, soon converted the cream into butter. At the early age of eighteen he became so enthusiastic on the subject of chemistry and electricity that he started out on a lecturing tour with a fully equipped apparatus of his own construction. Such an undertaking on the part of a mere boy was rather unusual, but he was not one of the kind who followed in the wake of most other boys—indeed, he was even called peculiar. In spite of difficulties and in spite of discouragements, he *electrified* his audiences, who sometimes complimented him, and at other times were disposed to make fun when his experiments did not turn out just as he told them they would.

About this time he engaged the services of one Samuel Bates, who acted as an assistant, door-tender, &c. In one of their journeys from one town to another it became necessary for them, as they thought, to ford a stream. Young Root declared that the water was too deep, and insisted upon unloading the apparatus from the waggon, which he did. Bates declared that it was perfectly safe; and accordingly the two, with the horse, began to ford the stream. They very soon got beyond their depth, and the horse, impeded by the waggon, sank; and Bates, not being able to swim, went down likewise. Amos, who had acquired the art, swam for the shore till he could swim no longer. With presence of mind he sank down and crawled toward the bank until out of the water. Having first emptied the water from his lungs, he called for help, and then pushed a rail out to a point where the receding ripple showed his friend had just gone down, never to return alive. This was not the only instance in which Mr. Root saved his life by swimming. The second time was from the waters of the Ohio River.

While these tours among the people in the interest of science did not enrich him pecuniarily, it gave him an insight into human nature which doubtless has been of great value to him in his subsequent life. Nor was this the only course in the study of human nature in his early experience. It so happened that there was a country school (one of the pioneer style), which no teacher had been able to teach through a whole term. The big boys had boasted that they could 'lick and put out any teacher' the directors might send, and heretofore they

were successful in carrying out the fullest intent of their boasts. The last teacher, a college graduate, after being forcibly ejected from the building, cried, because the boys would not let him in again.

When a young man of slight figure in the person of A. I. Root, applied for this school, the directors accepted him. I can assign no reason for such acceptance, in the light of former experience, unless it was the wiry appearance and the determined face of the new applicant. Everything went well for a time in the school; but, finally, one or more of the big boys contrived to create a disturbance. The result was the new teacher was overpowered by one of the brute forces. The latter called out, 'Come on, boys, let's put him out.' A. I. Root has a terrible temper when aroused. Now furious, with an almost superhuman effort, he flung his burly opponent over, and before he could recover himself placed his foot upon his throat and demanded of him to lie still or suffer the consequences. Young Root then asked the other boys if they were ready to obey. Order was restored, and the burly fellow afterwards became one of his best pupils. Besides this, the teacher received the praise of the directors.

The next hobby of Mr. A. I. Root was clockwork and jewellery. Having learned the trade by paying 2500 dollars for a course of instructions (occupying almost *two whole weeks*), he decided to go into business. Accordingly he went to a friend and asked him if he would loan him a sum of money for a certain length of time. This friend gave him some advice which he has been glad of ever since. It was this: He would loan him the money if he wished, but he urgently advised him to wait a little and *earn* the money by working for wages. Unlike most boys, the embryo business man accepted the latter, and his success in business life proves the wisdom of the advice. Shortly after setting up in the jewellery business, he was married (in 1861) to Miss Susan Hall. Imbued with a natural love for his work, and endowed with almost ceaseless energy and push, Mr. Root made his business prosper. Ere long, in the providences of time, a new 'rootlet' sprang forth, of which, I am told, the parent branch was exceedingly proud. That was in 1862, and the boy, now a man grown, sometimes signs himself 'Ernest.' The business continued to prosper until A. I. Root & Co. were among the largest manufacturers of coin-silver jewellery in the country. From 200 to 500 dollars in coin were weekly made into chains and rings. The firm employed something over a dozen men and girls in the manufacture of gold and silver rings, chains, &c. In 1865 his daughter Maude, now Mrs. J. T. Calvert, was born into the family. It was about this time that the first swarm of bees passed over his jewellery establishment. As this, together with his other bee-keeping experience, is fully given in the introduction to the 'A B C,' I omit it.

About this time he began to write for the *American Bee Journal*, under the very suggestive and appropriate *nom de plume* of 'Novice.' In these essays, as some of the old veterans will remember, he recounted some of his failures, and some of his successes, with bees. The articles seemed to take well, and, in the due course of time, so many enquiries came in, that he resolved to start a quarterly bee paper, entitled, *Gleanings in Bee Culture*. No sooner was the first issue put forth than he determined to make his little paper a monthly. Very soon after the manufacture of bee-keepers' supplies was begun in connexion with the jewellery business. With the windmill as a motive power, and a buzz-saw, 'Novice,' with the occasional assistance of the writer, made Simplicity hives. Sometimes the wind would not blow, and orders had to wait. I well remember on several occasions getting up in the night when a breeze started up, to 'help pa' saw the boards, I holding one end while he managed the other. As orders began to come, it was thought a foot-power buzz-saw would do what the wind would not. A 'Barnes' was ordered, and wind and foot-power were made to answer for a while. To make a long story short, the supply business continued to grow at such a rate that a little engine was ordered. This likewise was inadequate, and finally it was found necessary to engage a night force and run night and day. Things continued thus for a couple of seasons, when the jewellery business and the building 'up town' was sold (1877), and instead, another, larger, was erected near the depôt. This is shown on the first page of the 'A B C of Bee Culture.' As the subsequent growth of his business is already given fully in the introduction of the work just mentioned, I omit it here also.

In business matters he is prompt and decisive. An array of complications often arises in business, but his decision is prompt and final. With remarkable celerity he will grasp an idea or the gist of an article. The rapidity with which he will transmit his thoughts on paper is no less remarkable. He will usually dictate four pages of solid printed matter (5000 words) in little over an hour, and that, too, through interruptions which he permits of clerks plying him with business questions. While he is attending to his other business, the stenographer transcribes his thoughts with a type-writer. Sometimes I think more deliberation in dictating might be to his advantage; but he has not the time nor strength.

His activity is almost ceaseless, and his energy often goes beyond the proper limits of strength. He rises early in the morning, and from that time on till bedtime he is 'constantly on the go.' I have often desired to see him sit on a hitching-post and 'take it a little easy just for two minutes,' but he has never accorded me the pleasure, and it is not at all likely he ever will. He says he would 'rather wear out than rust out;' but if the Lord will, he will do neither just now.

To rest, in the sense of inactivity, is out of the question. That this constant activity, and the wear and worry of a large wholesale and retail business, has necessitated rest, his ill-health plainly shows. Young blood, in the personages of J. T. Calvert, Mr. J. S. Warner, your humble servant, and others, has, within the last three or four years, very materially lightened his labours.

Besides the two older children, are Constance, Caddie, and, last of all, Huber. This sketch would be incomplete were I to omit mention of the many ways that his faithful wife has helped him, in her own quiet, unassuming way, to bear up under his self-imposed tasks; nor should I forget to lay some of the credit to his good old mother, who still survives. It was she who gave him his early Christian instruction, and who prayed for him many years before he gave his heart to God. Some things concerning the life of Mr. Root I have omitted, because they have been given before. But, I must confess, I have not been scrupulously modest in writing up the facts. I have simply told them from the standpoint of another man's son. Without making any apology, I will, therefore, sign myself—ERNEST.

THE VILLAGE POLICEMAN.

The village and village life always have a charm for us. The very sound of the word 'village' is to me attractive. The mind at once conjures up visions of 'innocence and ease,' which may not all be true, yet are very charming. Poets have sung,—poets, let us hope, will continue to sing, of village life and village heroes. Goldsmith's 'Deserted Village' is a poem which probably will live as long as the English language. It has a touch of sadness which enlists our sympathies, and appeals to our feelings as well as awakens our interest:

'Dear lovely bowers of innocence and ease,
Seats of my youth, when every sport could please,
How often have I loitered o'er thy green,
Where humble happiness endeared each scene;

How often have I paused on every charm,
The sheltered cot, the cultivated farm,
The never-failing brook, the busy mill,
The decent church that topped the neighbouring hill.
* * * * *
These round thy bowers their cheerful influence shed;
These were thy charms, but all these charms are fled.'

Tennyson, again, has given us another picture of village life, 'The Miller's Daughter:'—

'I see the wealthy miller yet,
His double chin, his portly size,
And who that knew him could forget
The busy wrinkles round his eyes?'
* * * * *
'There's somewhat' (says the mystic miller), 'in the world amiss,
Shall be unriddled by and by.'
* * * * *

Then comes the song—

'It is the miller's daughter,
And she has grown so dear, so dear,
That I would be the jewel
That trembles in her ear;
For hid in ringlets day and night,
I'd touch her neck so warm and white.'

This, I remember, was one of my favourite pieces—

'In the days when I went gipsying,
A long time ago;'

and I hope this reference will induce you, gentle reader, to turn to your Tennyson and refresh your memory. You may have no mill in your village, but I have, and a very interesting mill it is, but there is no 'Miller's Daughter.'

The admirers of Longfellow will at once recall one of the loveliest of his lyrics (if I may use the phrase), 'The Village Blacksmith'—a poem as perfect in its way (so it seems to me) as any he has written:—

'Under a spreading chestnut-tree
The village smithy stands;
The smith, a mighty man is he,
With large and sinewy hands,
And the muscles of his brawny arms
Are strong as iron bands.'

Curiously enough there is a spreading chestnut-tree close to my 'village smithy'!

'His brow is wet with honest sweat,
He earns whate'er he can,
And looks the whole world in the face,
For he owes not any man.
* * * * *
Toiling, rejoicing, sorrowing,
Onward through life he goes;
Each morning sees some task begin,
Each evening sees it close;
Something attempted, something done,
Has earned a night's repose.'

But no poet has sung of the village policeman. Let me say at once that I do not propose to attempt such a song. Whose imagination (save an Irishman's!) can be kindled at the sight of a policeman's bâton or bull's-eye? Not mine, at any rate. Why, then, select such a subject? The answer in the *Bee Journal* is obvious. My 'village policeman' is a bee-keeper! As Debnam (the Essex expert) and I were busy one day among the bees, who should suddenly appear but the village policeman! He, no doubt, noticed a disturbance going on, and came to keep the peace. Nothing pleases him more than to capture a queen, to drive a swarm, and take them into custody. I am afraid the Editor will not think him worthy of a place in his gallery of 'eminent bee-keepers,' yet some notice of my friend and neighbour may interest your readers.

Let me first advise all who live in a village to cultivate the acquaintance of their guardian of the peace. My 'guardian' lives five miles away, but a postcard soon secures his attendance. As soon as he arrives, he is ensconced in the study chair. We at once begin about bees. Here we have common ground, and find that we are members of a fraternity superior, of course, to the mass of mankind around us. Having settled that point to our joint satisfaction, we proceed to discuss the state of affairs in the little world close at hand. The 'village policeman' is able to tell some good tales. Here is one that I know to be true:—

'My mate and I had agreed to meet at twelve o'clock at night at an appointed place. The moon was nearly full, the air was bright and clear, so that we could see a long way off. As we walked along the road we saw two figures stealthily proceeding across some fields. Carefully concealing ourselves behind the hedges, we followed for a while, and at length marked the spot where, as we thought, they must enter the main road. As they approached, we observed that they were carrying something on their shoulders. Placing ourselves behind the hedge, just where one of them was evidently about to jump over, we awaited his coming. Soon a bag was flung across, then came the man himself; he descended—almost into our arms. Resistance was impossible. He was cowardly enough to complain that we had not taken his companion; the name was mentioned, a search-warrant obtained, the potatoes (taken from a farmer's 'clamp') were identified, and both the delinquents were Her Majesty's unwilling guests for a long and laborious month'!

The hero of my tale was born in Suffolk, where his father was a farm-bailiff. He worked 'on the land,' as the East Anglians say, until he was twenty. Happily, his schoolmaster—Baxter by name—he deserves to be immortalised—the national schoolmaster at Clacton-on-Sea—was a bee-keeper, and taught his boys to love bees and bee-keeping.

But my friend had not many opportunities at first for indulging such tastes. A man must be 5 feet 8 inches and twenty years of age before he can join the police, as a general rule. As soon as the size and age were attained, he became a member of the Metropolitan Police. London is not a nice place either for bees or for married men, so, in course of time, the village policeman found himself in Essex. Here he wanders at all hours amid the lanes and by-ways, taking charge of an area which would seem very large if given in square miles. But, happily, he now can keep bees! He makes his own hives and secures a good harvest. Forty pounds per hive has been his average this year. He drives the bees for the cottagers, and endeavours to save and sell them when they are threatened with brimstone. He says that the people think it right always to tell the bees whenever a death occurs in the house. They also carry out the old custom of striking a dustpan with a key or a poker whenever a swarm issues from a skep.

The 'Village Policeman' has learnt to keep his eyes open and to find honey where others would only think of danger and formic acid! He has found a tree in which a swarm has made its home, and we have agreed, at some time or another, to 'tackle' it. But one feat of his surpasses, I suspect, anything ever done by any of your 'eminent bee-keepers.' He has taken honey from bees who had made their home in an 'nllum' tree at a height of more than fifty feet! When he told me this I exclaimed inwardly, '*Credat Judæus, non ego.*' I began to believe that the village policeman came from the other side of the Irish Channel, or, at all events, had 'kissed the blarney-stone.' No! he is a sober-sided, solid Englishman! 'Silly Suffolk' claims him. This story was verified by a brother clergyman who saw the deed done. A swarm had occupied a hollow place which they found in a very high elm-tree. For many years they lived undisturbed—the old departing, the

young arriving. On one unlucky day, however, the wind was very strong. Down, with a crash, came one of the poor 'ullum's' limbs, exposing the sacred treasures to the gaze of the vulgar, as well as to the rapacity of cruel man. The policeman, of course, was sent for, not to run the little creatures in, but to bring them and their treasures out. A ladder was obtained, our friend ascended, protected by a veil and a smoker; he put his hands, each of them covered by a woollen sock, into the treasure-house: soon he brought out enough to repay him for his trouble. He did not take all he could have got; so let us hope that our industrious little friends will weather the hard times which I fear are before them during the winter and early spring.

Does any one wish to see the hero of my tale? If he does, let him not seek him in the village in which I live, but ascend Mount Bures, and on the north side of that well-known eminence he may, perhaps, find a P.-C. on the right bank of the river Stour, in the county of Essex.—E. Bartrum, D.D., *Wakes Colne Rectory, Essex.*

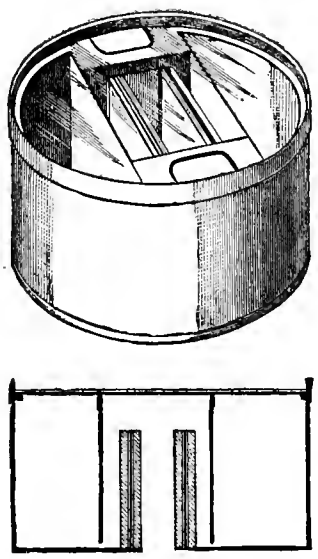
BEE-KEEPING FOR COTTAGERS.

VIII.

Dry Sugar Feeding.—This is by no means a new method. When amongst the bee-keepers in S. Wales in 1884 I found that it was a general practice with many, after removing the supers, to fill a basin with brown sugar, cover it with thick paper, in which a few holes were made with the finger, and then invert it over the feed-hole. That is the exact method I should recommend the cottager to adopt immediately after removing his supers. The sugar should be slightly pressed into the basin or jar, or whatever is used, and the moisture arising from the brood-nest will soften the sugar sufficiently to allow the bees to use it; and as it can only be converted into syrup slowly, it is a capital and simple method of slow feeding, particularly after the honey flow, when there is more heat and moisture arising from the brood-nest than in the spring.

Stocks in bar-frame hives may be fed with dry sugar by placing it in a dummy feeder at the side of the brood-nest.

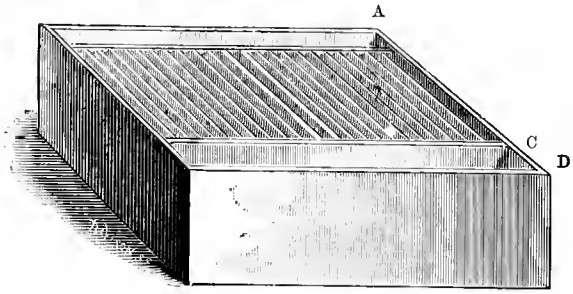
Rapid Feeding should follow slow feeding about the middle of September. The following illustration is of a



'White's Perfection Feeder.' (Registered.)

feeder which may be used for either slow or rapid feeding. Its method of action is simple and may be easily understood. The great objection to metal is overcome by pieces of an old or broken section being cut and made to slide down on each side of the inner walls so that the bees travel upwards from the hive and downwards into the syrup trough on wood. In refilling, the holes in the glass cover are moved with the finger over the syrup chambers, which may be filled from a pitcher or syrup can. By turning the glass cover back as shown in the illustration the syrup is protected from robbers, if the roof of the hive should not be bee-proof.

Wooden feeders of the Canadian pattern are much used, one of which is illustrated below.



Canadian Feeder.

The body of the feeder is divided into a number of troughs by means of thin pieces of wood which slide into grooves, made in the inner sides of the inner walls of the feeder.

The bottom of the space between the walls A and B is open, and when placed over a hole in the quilt across the frames the bees have ready access from any part of the hive over the wall B to the troughs in which the honey or syrup is placed by the bee-keeper.

The cover may be a plain piece of wood or a sheet of glass which in refilling the feeder must be moved back so that the syrup may be poured into the space between the walls C and D.

The wall C does not quite touch the bottom, so the syrup rises in the troughs until it is as high as in the space C and D, a glance at which will at any time show the state of the supply.—C. N. White, *Somersham, Hunts.*

(To be continued.)

ASSOCIATIONS.

EBOR BEE-KEEPERS' ASSOCIATION.

The first annual honey fair and exhibition of honey for prizes of the Ebor Bee-keepers' Association was held by special arrangement in conjunction with the York Chrysanthemum Show in the Fine Art Exhibition building, York, on November 20th, 21st, and 22nd. The exhibits of comb and extracted honey were both numerous and excellent in quality. The schedule was divided into five classes, for which there were thirty-three entries. All the exhibits, without exception, were well got up. Those in every way worthy of special mention are, Mr. J. York's twelve bottles of extracted honey, Mr. C. Atkinson's large collection of clover honey in bottles and sections, Mr. J. Davis's and Mrs. Kirk's heather honey in sections, and Mr. J. Marshall's extracted heather honey in bottles exhibited in his collection.

During the three days of the honey fair about half the exhibits were sold. To add to the interest of the occasion, a choice selection of frame-hives and bee-appliances was provided for inspection at the honey fair by the proprietor of the York and District Bee-appliance Stores and Honey Depôt, A. C. Jemeison, who acts as consulting secretary and expert to the Association, and into whose hands was entrusted the management of the honey fair. Mr. W. Dixon, Belmont House, Beckett Street, Leeds, acted as judge, and it is

only fair to say that he was most careful and painstaking in making his awards. The following is the prize list:—

Class 1.—For the best twelve 1-lb. glass jars or bottles of run or extracted honey. 1, Mr. J. Yorke, Church Fenton, near Leeds, 10*s.*; 2, Mr. C. Atkinson, Tockwith, York, 5*s.*; 3, Mr. J. Marshall, Buckthorpe, York, 2*s.* 6*d.*; h. c., Mr. W. Richardson, Copmanthorpe, York; c., Mr. T. Shaw, Fulford, York. Class 2.—For the best six 1-lb. glass jars or bottles of run or extracted honey. 1, Mr. C. Atkinson, 5*s.*; 2, Mr. W. Richardson, 2*s.* 6*d.*; 3, Mr. T. Shaw, 1*s.* 6*d.*; h. c., Mr. J. Davis, Fulford; c., Mr. J. W. Richardson, Sheriff Hutton. Class 3.—For the best six 1-lb. sections of comb honey. 1, Mr. T. Shaw, 7*s.* 6*d.*; 2, Mr. C. Atkinson, 3*s.* 6*d.*; 3, Mr. J. Davies (equal 3rd, Mrs. Kirk, Stillington), 2*s.*; h. c., Mr. W. Richardson; c., Mr. J. Marshall. Class 4.—For the best and neatest exhibition of honey from one apiary. 1, Mr. C. Atkinson, 10*s.*; 2, Mr. J. Marshall, 5*s.*; 3, Mr. F. Baron, Askham Bryan, 2*s.* 6*d.*; c. Mrs. Kirk. Class 5.—Heather honey in bottles and sections. Extra prizes awarded to Mr. J. Davis, Mrs. Kirk, and Mr. C. Atkinson, Patley Bridge.

ESSEX BEE-KEEPERS' ASSOCIATION.

The lecture to which we adverted last week will be delivered by Mr. Durrant on December 17 at Hale End Institute, near Chingford, at 7.30.

BEE-KEEPERS' VOCABULARY;

Or, Glossary of Technical and Scientific Words used in Works upon Bee-keeping.

Dummy. *n.* (fr. *Sax. dumb*, to be silent.)—See *Division board.*

Duplet. *n.* (fr. *L. duplus*, double.)—Used by Keys for a hive set over or under another.

Duplicate. *vt.* (*L. duplicatus*, fr. *duplico*, I double.)—To place a hive over or under another.

Dwindle. *v. intr.* (*Sax. dwinan*, to pine.)—To diminish; to become less; to waste away.

Dwindling. *ppr.*—Becoming less; the slow decrease in the size of stocks in early spring is termed *spring dwindling.*

Dysenteric. *a.*—Pertaining to dysentery; proceeding from dysentery.

Dysentery. *n.* (*L. & Gr. dysenteria*, fr. *Gr. dys*, bad, and *enteron*, intestine, fr. *entos*, inside.)—A disorder of the intestines; a disease in which bees void large quantities of very liquid fæces; called *looseness* by old writers. See *Diarrhœa.*

Dzierzon theory.—Theory propounded by Dzierzon, that an unfecundated queen may lay eggs but that these will produce drones only; parthenogenesis.

Earthen hives. (fr. *Sax. eard, eorth.*)—Clay or earthenware tubes, still used as hives for bees in the Islands of Greece, Asia, and Africa.

Eastern races.—Oriental races of bees, such as the Cyprian, Syrian, and Palestine.

Eche. *n.* (*M. E. eche. A.-Sax. éaca.*)—An eke or addition. (Kent.)

Eche. *v.* (*M. E. echen.*)—To add to; to increase. (Arch.)

Ectozoa. *n. pl.* (*Gr. ektos*, without, and *zoos*, living.)—A term applied to parasitic animals, such as lice, ticks, &c., which live upon the external parts of other animals.

Eek. *n.* See *Eke.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 2nd page of Advertisements.)*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

BORGUE HONEY AT THE CASTLE DOUGLAS SHOW.

[2385.] In your issue of November 21st, page 488, I am taken to task by my friend Mr. John Dunlop, on Borgue honey competing at the Castle Douglas Show. Permit me to say briefly in reply, that when I penned my remarks *re* the prize essay on Borgue honey, I could not say *who* were the competitors at the above show, by referring to page 469 of *Journal.* I simply state that 'Borgue honey did not figure in the prize list,' &c, &c. Knowing also that the open classes at Castle Douglas Show were *expressly* got up for the purpose of testing this famous honey against all others, the bee-keeping fraternity were, consequently, more than interested in the competition. It was currently reported at the show that Borgue honey *actually* competed there, although brought *clandestinely* and exhibited by outsiders, not for the value of the prize money, but as a test. Since then, however, more convincing proof has come to light, as one correspondent writes me by postcard, dated 25th November, saying, 'I beg to inform you that Borgue honey was exhibited at the Castle Douglas Show by a neutral party, who bought the sample at Borgue Show this year, it having gained the prize there, but which did not "get in" at Castle Douglas.' The party who bought the honey and competed with it is himself the informer.

It has been hinted to me several times that the Borgue bee-keepers consider I have written disparaging their honey. I here take this opportunity of saying that not to my knowledge have I ever written or said anything against their honey, except this, that before Borgue can lay claim to any 'superior excellence,' it must *first* be proved by competition. In this the bee-keepers of Borgue need have nothing to fear. They have already the name, they live in a good clover district, and all that is necessary with them now is 'good management,' and sufficient pluck to meet all comers. Were I residing in that favoured spot, I would only be inclined to 'die hard' in keeping my honey to the front, and which, judging from the pile of correspondence on this famed honey, will be the only way to arrive at a satisfactory decision.

The Secretary of the Castle Douglas Show, Mr. Blackwood, and the Committee, are to be congratulated on the very efficient manner in which this competition was carried through, and as it turned out a success financially, it is to be hoped they will see their way another season to still further extend the honey prizes. If I may be permitted, I would suggest that there be open classes for extracted honey in jars, granulated honey, heather honey—each a separate class—and comb honey in 1 lb. sections, on the same lines as in the last show. It may, perhaps, be of interest to bee-keepers generally to state how these open classes were arranged. In the class for extracted honey there were three 1 lb. jars, all the jars were specified to be of one pattern and make. The class for comb honey was six 1 lb. sections in holders of one make and colour. Any private mark or infringement from these rules disqualified the exhibit. To show how

this plan worked, it may be noted that very many of the exhibitors could not point out their own honey when admitted, until the attendants opened the envelopes containing the signatures of each competitor.—W. McNally, *Glenluce, 27th November*, 1889.

BEE-DRIVING.

[2386.] I have a cutting from a Lincolnshire paper as follows:—

'The Rev. J. Lawson Sisson had met with a very curious example of bee-driving while travelling the other day. A man having the appearance of a cottager told him that a relative of his near Wisbech having become impressed with the inhumanity of destroying the bees by means of sulphur, had inverted his straw hives in a vessel of water, allowing the water to come half-way up the sides of the hive. He then placed a new hive over the bottom of the old one, and the bees all sought refuge in the upper hive. He was then able to take the honey from the old hive.'

Abbott and the rest of my friends at that meeting at Louth—I know not how many years ago—langhed at the idea.

Last month I was in London, and at my hotel I met a gentleman from British Guiana. He was a Scotchman, and, like Scots, very intelligent. Talking of bees, he asked me how I drove bees, as he had met with a new process in the extreme north of Scotland. I begged him to tell me his method first. It was to the very letter what I spoke of at Louth.—J. Lawson Sisson.

SHALLOW FRAMES.

[2387.] I hasten to correct a printer's error in my letter, No. 2381, *re* Shallow Frames, Fifth Advantage (line 8, p. 497), making me lay down that 9 combs yielding 2½ to 3 lbs. a-piece give a large enough proportion of run honey per hive *for* any *market*, which should read *for* my *market*. I would also claim another advantage for 4¼ inch frames—viz., that they pack two deep in boxes made for 8½ inch frames if the boxes measure inside the length of the top bar.—Matthew Hy. Read, *Clonoughlis, Straffan, Nov.* 29.

TEACHINGS OF THE *JOURNAL*.

[2388.] Having been a constant reader of your *Bee Journal* for three years, and having kept bees these four years, I should be obliged if you would give me your opinion of honey sent in next *Journal*. I have now forty-six hives of bees all strong and well, and had nineteen last year go into winter quarters. Guided by your *Journal* I came safely through the winter with eighteen stocks losing one.—William Pearce.

P.S.—Would gladly state how I started and have carried through my four years if you think it would interest readers of *Bee Journal*. I often laugh to myself when I read about joining Bee-keeping Associations. I paid once my subscription of 2*s.* 6*d.* at a bee show for same, but never from them heard a word since.

[The honey sent is very good. We should be pleased to have your past experience. We must crave the pardon of our correspondent in stating that we do not appreciate his remarks in regard to the Associations. Circumstances may have prevented his hearing anything of his society, save that he should have received at the end of the year a report of the Association's work. Many bee-keepers are apt to think that small subscriptions should produce great personal benefits. We think that if our correspondent's County Association is doing good work according to its means, it should receive his support. The Associations exist for the general benefit of the industry, and without such institutions its claims would soon be lost sight of. Dairy-farmers, agriculturists, horticulturists, all have their several associations and societies; and we trust the day is far distant when bee-keepers will consider their industry to be unworthy of being represented by its several Associations.—Ed.]

REPORT FROM SOUTH NORFOLK.

[2389.] The season that has just passed has been much better than last, although it has not been an exceptionally good one. The honey flow was late. Cold east winds prevailed during May and the early part of June, the bees being unable to take much advantage of the apple or may-blossom. It was also rather disappointing to see acres of white clover in full bloom, and the bees unable to make lengthy flights on account of the state of the weather. Indeed, when a day or two of warmer weather did arrive the little workers could find but very little nectar in this our most fruitful source of honey in this district. Had the weather been more favourable in the early part of the year this would have been one of our best seasons on record. My own bees have yielded about 60 lbs. per hive. I have most of them on the tiering system, and 'go in' more for comb than extracted honey; I find this pays the best. I use both the two and the four-way sections, and have found this year the four-way best filled of the two kinds. I took a crate of twenty-one four-way sections off, and there was not a pop-hole in any of them. Each section was a perfectly square slab of honey.

The blacks (the good old English blacks) I have found much easier to keep from swarming than the Ligurians; they have also stored more honey this year.

I had three stocks of Ligurians in a field of white clover of eight acres; I expected much from them this year. Somehow or other they got the swarming fever, complicated with the stinging fever, and they— Well, they played such antics that they didn't store so much honey as they might have done; and if the Editor thinks it would be of any interest to readers of the *B.B.J.*, I might at another time send an account of their diversions. A clergyman in this district has obtained over 1000 lbs. from twelve stocks. His hives are of twelve or thirteen frames, with one crate of sections; he has had the extractor in full swing.

The owner of six frame-hives has taken an average of 60 lbs. per hive, and has also increased his stocks by two. The skeppists have had a very bad year of it; many have become extinct. One who had about thirty stocks, only had three to begin the season with. I find several of them prejudiced against the new, or rather the proper system of bee-keeping.

Wasps have given little or no trouble.

The honey has been of a uniform light colour, and none or very little was dark-coloured, on account of the entire absence of the so-called honey dews.—H. Beswick, *Expert, Norfolk and Norwich B.K.A.*

[We should be pleased by your forwarding the account mentioned.—Ed.]

HONEY AT HARRINGTON.

[2390.] A correspondent writes:—'One never sees Harrington harbour without thinking of good St. Cuthbert's body and the red waves that drove it back to shore, and the salt-drenched missal, now in the British Museum, that the monks found at low-water mark when the tide receded. But on Thursday, November 21st, old-world things were forgotten in the new-world things gathered together for our delectation in the Temperance Institute. Truly, the goddess of the needle, Minerva, might well have been proud that, at the little town of Vulcan by the the sea, she had so many votaries. The Norsemen of old time, too, would have been proud of their sailors' sons if

they had come from their graves to see the ship models and the white-winged boats in miniature.

'But I had come to see "how fared the busy bees," and though one was a bit disappointed at the smallness of the entries, one remembered the time of year and was rejoiced to find the exhibits in the apiarian class so up to the mark. Of the honey itself it is not possible to speak too highly of James Clark's (Distington) six 1-lb. exhibits of run honey; if it wanted density it was as clear as crystal. James Finlay's (Hensingham) exhibits of six 1-lb. run heather honey was as good as it could be. John Hall's (Wigton) display of honey in various degrees of run and bottle was capital; and Edward Dryden's bar-frames honey samples were up to the mark, though cold weather always militates against displays of comb honey. Among the sections, James Clark (Distington) was first; and here let me call attention to the very capital little tin frames and glass covers which Mr. McNally had obtained for exhibiting the sections in. These are cheap and most effectual in keeping honey from the dirt and flies; every grocer should know of them. When we came to the bar-frame hives, we find James Clark—who seems, to judge of his handiwork in basket chair making, to be a kind of universal genius—first, with a hive made out of tea-box wood in a most masterly style of neat workmanship, while Robert Philipson (Keswick) ran him close with a first-rate piece of workmanship, simple but most compact and well-finished. A word here of Philipson's bee-feeder, which seems to fill a want and to be a good working article. Not least interesting were some exhibits of confectionery in which honey seemed the chief ingredient. Messrs. Carr's (Carlisle) honey-cakes were toothsome, and very delicate morsels Huntley and Palmer had produced, as honey nuts, in 1-lb. boxes. That firm, I believe, use three tons of honey each year in their factory, so honey has found new uses—the mead goes out, the honey biscuit comes in.

'Mr. Sarginsen's awards gave satisfaction, and we believe that the honey show at Harrington has sensibly moved on the clock, and we heard talk in the room of a great honey show and fair to be held at Keswick next September. We wish it a hearty success. Many a cottager can pay his rent by his winged friends' help, and save a large bill for butter into the bargain; but it wants a dozen men such as Mr. McNally to rouse Cumberland to the worth of the little brown bee.'—*West Cumberland Times.*

JUDGING HONEY.

[2391.] Allow me to correct an error into which Mr. McKnight has fallen, in his letter headed 'Canada,' in *B. B. J.*, Nov. 7. He states that in the scale of marks I give 'aroma two and flavour one,' whereas, even after dividing my scale by five (*B. B. J.*, Oct. 3, 2312), to bring the total from 100 to 20, it will be seen I suggested aroma two and flavour eight, as I certainly think the latter quality four times as important as the former.—Edward J. Gibbins, *Neath, Glamorganshire, Nov.* 19.

HONEY: ITS USES.

[2392.] Producers of honey in general know its value. We have been educated by reading from time in the *B.B.J.* What we now want is to educate the public, so as to create a demand for honey. I keep a reporter's note-book (cost a penny), and while reading I make a note of anything which I think will be of service to me. I head the article, what date it is, and the page, so that in a few moments I can lay my hand upon the *Journal* I want. In looking over my note-book, I find an article written by the editor, 'Good Properties of Honey,' 5th September, 1889. Another article, written by R. A. H. Grimshaw, entitled, 'Non-alcoholic Drinks,' 31st May, 1888, page 276. What we want is a great deal of information in a nut-shell to distribute among the public. If we educate the public, then, by God help, all trades connected with our industry will flourish.—T. H. A.

Echoes from the Hives.

Kingston-on-Thames, November 26th.—I have lately examined some of the hives in this district, by invitation, and for the most part have found them fairly satisfactory as regards stores, and numbers, more so even than some of my own, which have suffered much at the end of the season from those daring depredators—the wasps; but many a one has suffered for his temerity with his life, as the many dead inside have testified. However, that is a thing of the past, and with judicious feeding and young queens we may take courage and hopefully look at the brighter side, as regards the future as to the yield of honey. Taking the average, it has not quite come up to that of 1887, as far as I can learn; but this is in part attributable to the fact that some of our friends (including myself) have gone in for increase of stocks. I have not taken even a dozen pounds from my own hives on account of dividing and getting them into good condition for wintering; so to supply my customers I have had to buy 90 lbs., about half of sections and run honey, respectively, which I have sold at 1*s.* 3*d.* each, and 1*s.* per lb., the profit from which has enabled me to purchase an extractor (Abbott's Little Wonder), three dozen frames (in the rough), three dozen Carr's metal ends, three and a half pounds of foundation, a two-pound bottle of clover honey, and one lot of driven bees: so I would say to any who are faint-hearted, Persevere. While I am writing there are eleven degrees of frost.—H. Crawley.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

Nixon.—1. *Lift.*—Three inches is quite sufficient. It will not matter if the entrance is between the lift and the body-box. We should prefer a shallow lift to a nine-inch one. 2. *Packing.*—Your plan should answer first-class.

R. de B. S.—*Feeding.*—In view of the very mild, open weather we have had we should advise you to put a cake of candy over the feeding hole.

W. T.—*Commencing Bee-keeping.*—We should have advised you to start in May next, with a swarm or swarms. These could have been sent you in a swarm-box for about 10*s.* 6*d.* each swarm; carriage say, 1*s.* or 1*s.* 6*d.* If you buy bees at a distance, and they are *properly* packed when put on rail, you *must* pay for them irrespective of the condition in which they arrive. You can of course proceed against the carrier for damage, but you will have to prove negligence on his part, which is not always easy. If you do buy, why not take delivery in second week in April? It will be to your interest to do so. Leave the sender to pack them in his own fashion, but ask him to write you how they will be packed, so that you have his letter to fall back upon if the Railway Company damage them. In case they arrive damaged, inform the sender and the Railway Company exactly as to the condition in which the bees arrive. The style of hive is a matter of opinion; either you name are capable, in competent hands, of giving good results. We should say your carriage will be heavy.

*** *A few further queries will be answered in our next issue.*

RAITT'S CELEBRATED FOUNDATION.

THE Trustees of the late WM. RAITT beg to announce that the business is being carried on under the management of his Nephew, who is prepared to receive enquiries and orders for this **WELL-KNOWN MAKE OF COMB FOUNDATION.**

Address WM. MONAIR, BEECROFT, BLAIRGOWRIE, N.B.

THE Trustees have also to announce that they are prepared to dispose of the Business, with Good-will, Plant, and Premises, so long and successfully carried on by the late Mr. RAITT.

Applications to WM. GIBB, UNION STREET, EAST NEWPORT, FIFESHIRE; or to WM. RAITT, WOODBURN GREEN, MAIDENHEAD, BERKS.

The British Bee-keepers' Association.

IN accordance with the intimation given in the last Report of the Association, a fund was opened early in the present year to enable the Committee to meet the necessary expenses attending the Exhibition held at Windsor in June last. At a recent meeting of the Committee it was resolved that, in consequence of the exceptionally heavy work and expense which the Association had been called upon to undertake during the present year, this fund should be extended for general expenses. During the current year it has been found desirable—

(1) To oppose the several Railway Companies in their proposals to obtain powers for charging excessive rates for the carriage of honey and bee-keeping appliances under the Railway and Canal Traffic Act: a still further outlay is needed under this head.

(2) To amend the rules and regulations for conducting examinations.

(3) To hold an Exhibition of Honey, &c., at Horsham, in connexion with the Bath and West of England Agricultural Society, &c.

The Committee are unable to meet their current accounts as readily as they could wish, whilst additional work, such as the printing and circulation of useful pamphlets, &c., cannot be undertaken through lack of funds.

£45 of this fund has been absorbed in the expenses attending the Windsor Exhibition. Several subscriptions have since been received, making the total amount nearly £60. This sum is, however, far short of the Association's needs; at least £100 ought to be raised. The Committee urgently appeal for support in their work. Subscriptions should be forwarded to the Secretary, Mr. John Huckle, Kings Langley, Herts.

THOS. W. COWAN, *Chairman.*

November, 1889.

SUBSCRIBERS:

	£	s.	d.
Acton, Mrs.	0	5	0
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THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.

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Editorial, Notices, &c.

INTERNATIONAL AGRICULTURAL EXHIBITION, VIENNA.

We have received an invitation circular to take part in the Universal, Rural, and Forestry Exhibition, to be held in Vienna in 1890. This Exhibition is to be an international one, and will include everything connected with country pursuits, agriculture, dairying, vine and fruit culture, horticulture, bee-keeping, machinery, &c. The permanent exhibition is under the management of the T. R. Agricultural Society, of Vienna, and is to continue from the 15th May until 15th October, 1890. It is under the most distinguished patronage, and there is a liberal prize fund of 66,000 florins.

Besides the permanent exhibition, there will be temporary shows arranged in twelve groups.

Bee-keeping has a special section to itself, Group vii. (Austro honey), and also an international section.

We are also asked to give notice that entries close on the 1st January, 1890, and that full particulars and schedules in English may be had by addressing, The General Committee of General Rural and Forest Exposition, Herrengasse 13, Vienna, I.

DEVELOPMENT IN THE HONEY BEE.

By R. A. H. GRIMSHAW.

Of a necessity much that may be said on such a subject must be mere conjecture and hypothesis. The records written in the leaves of geological scripture are so meagre, perhaps because of the rapidly perishable nature of the bee's body and its products, that what remains are disclosed only show us an insect similar to our own without throwing any light on its habits. Readers must, therefore, please accept, reject, or take *cum grano salis* my conclusions, according to their degree of probability and reasonableness of happening; the imagination will have to be brought into play, and if its pictures be only figured on a logical background, the result, it is hoped, may be to some degree agreeable.

Just let us think of our old earth millions of years ago, so long ago indeed that layer after layer of sandstone, shale, clay, chalk, gravel, and what not, have been deposited on its surface, until, had it not been crumpled and bent into hills and valleys, you would have had to dig a hole two miles deep before you came across the remains of what lived upon it in those days of sweltering heat, of hot mists, and miasmas; days of enormous length between sunrise and sunset, in which the interval heat of the earth-mass, gave off into space, and carried upwards part of the moisture with which nearly the whole surface was covered (a great proportion of it is so yet, by the way), and this, sharply condensed at sunset, falling rapidly, was just what was wanted in the way of suitable surroundings by the gigantic ferns, mammoth mosses, and marestails, which only required a *foothold* of soil wherein to grow and spread in every direction. These things still survive, they have representatives yet on the face of the land, but they are only pigmies. Why am I taking you back to a time of everlasting 'green, green everywhere, and not a flower to see?' Well, it was at this point that insects first appear on the earth, for as the dry land is pushed out of the water, on the margins of which aquatic plants become semi-aquatic, and from that advancing into totally terrestrial life, so do the water-loving insects, flitting about in myriads amongst the dank, rich, floating growths of a tropical swamp, gradually adapt themselves, along with their plant homes, to *terra firma*. Gorgeous dragon-flies and gnats of gigantic size alone relieve, by their gem-like iridescence, the sombre monotony of green, grey, and black, of water sky, and verdure. Only at sunset and sunrise there is a prolonged steeping of the horizons in blood-like mist, which rises and falls in regular undulating seas, bearing on its bosom poisonous fumes emanating from the weird and uncouth organism then peopling the waters, corrupting what was the atmosphere of that age, for animals such as those now living could not, even had they been, have existed in the carbon-laden air. The oxygen, so necessary to animal life, was pent up in the composition of the eternal, saltless sea. Cataclysms and electric storms changed all this in long eons, and animals began to emerge from the pestiferous shades to where more light was (though not as yet the sun's *rays*), and where more life-sustaining breath could be found. Fishes came to the surface too for oxygen, finding their insect prey also rising to the surface in larval form, and flying off in all the joyous happiness of new ephemeral existence. So the harmonious round of nature is extended, marine and aerial; animals chase, capture, and

subsist on each other; dying, their remains are absorbed by sub-aquatic, marginal, and terrestrial plants, which, in their turn, form of them new chemical combinations; and these are again yielded up to animals for still further complex uses. Now stray gleams of clear light pierce the thick vapours, and in answer to the life-giving challenge, nature responds by the production of new forms. Plants seek to reproduce themselves, through the intricate chemistry of the better elaborated cell contents, by means of inconspicuous flowers, green like themselves; then green becomes paler into grey; finally white blossoms appear, which attract newer forms of insects; moths come to prey upon the degraded contents of ruptured cells, which, becoming numerous, fill the air first with what would be to us disgusting scent; poisons are fed upon as if they were the most exquisite nectar.

The earth, now bathed in hot light, offers a home to higher life, and the higher life follows, as always is the case. More highly organized plants are accompanied by more highly organized insects; lemon-coloured, yellow, orange, red, purple, blue, flowers follow in succession, a succession of millenniums in all likelihood, and parallel with these coloured combinations develops the marvellous insect world around us, each, both host and guest, adapting themselves in wondrous precision to each other, guided by an omnipresence which is the prime factor of the whole created universe. Can one imagine a more fitting time than this for the appearance of the nectar-loving bee, the honey-bee?

With its development out of pre-existing forms we know nothing, we can only vaguely surmise; but with its development, its evolution from the remote carboniferous period to the insect as we find it to-day, I purpose being concerned. In support of the hypotheses I intend to touch upon—I shall have to appeal repeatedly to the life-history of the humble bee of to-day. Some physiologists in studying embryology contend that every stage the animal passes through represents a vast period during which it lived, completed up to that point, and beyond which it forced itself into a higher grade by the law of evolution. This theory has much in itself to condemn it as fallacious, yet it contains some commendable ideas, and these prevent it from being wholly dismissed from the mind. There is some, if small, ground for believing that a germ of truth is hidden within. When we look at the microcosm of a bee's egg, capable, as it is, of being differentiated by changed conditions into the queen, drone, and worker, we become impressed with the immense prepotency residing within it—a power none can comprehend, yet the simplest may admire and marvel at the superlative wisdom which impels and guides it in its mysterious, instinctive working.

Let us betake ourselves in imagination to some sub-tropical region in the time of insect-life development on the earth, when flowers began to assume colours, when the rays of the sun beat down on the green leaves in which the active protoplasm and chlorophyll lend themselves as reservoirs and phyltres, holding chemical substances susceptible of forcible chemical change. Such change does not give birth to absolute colour, taking colour to mean pigment; yet it does so alter the chemistry of the white sap of the cell in which the green granules float that the white ray of sunlight is broken up by it as by a prism. Some of the colours (nearly all of them) are absorbed by it, whilst the remainder, be they pale yellow, light pink, or lavender-tinted, are rejected, as it were, and reflected again in some (only) of the superficial skin layers of the flower petals, so the flower would appear to even us slightly tinted and consequently attractive: how much more, then, to the highly sensitive optic nerves of insects visiting such flowers for sustenance!

(*To be continued.*)

In Memoriam.

MRS. M. B. CHADDOCK.

Mrs. Mahala B. Chaddock died at her home in Vermont, Illinois, on the evening of November 12th, 1889, in the forty-fifth year of her age.

She is well known by her spicy writing to all bee-keepers of the world who read and speak the English language. She belonged to that class of authors, heretofore quite rare, but now more frequently known, of practical working men and women who write with their sleeves rolled up. She was left an orphan at the age of six years, but found a home in a family of Friends, commonly known as Quakers, who gave to her the opportunity of acquiring a common school education. At the age of fifteen she commenced teaching, and followed that as a means of livelihood until her marriage.

She was of Scotch parentage, and it may be interesting to the readers of the *British Bee Journal* to know how the Queen's subjects live who cross the Atlantic, and find a home on a farm in the middle of this continent. I visited Mrs. Chaddock in November 1879, at her home on a farm, which comprised two hundred acres of land, which was well stocked with horses, cattle, sheep, and swine, besides poultry and bees. There were apples in abundance, and her well-filled table bore evidence of a good crop of peaches, cherries, grapes, strawberries, raspberries, and blackberries. The small fruit she had planted and cultivated with her own hands. She called my attention to a magnificent grove of evergreens, which she had planted with her own hands as a windbreak, also an acre of strawberries in splendid condition.

The family comprised the father, mother, an invalid sister, and three children. There were no servants, either men or women. In the morning the father fed the animals, milked the cows, &c., while the mother prepared the breakfast. After the repast, the children were made ready for school, and with their basket of lunch, wended their way to the school-house, and the parents to the corn-field to gather the corn. Mrs. Chaddock at this time abounded in health and strength, and said that she enjoyed a day's chopping in the woods after the trees were felled.

They had bought their farm with but little means, and were endeavouring to pay for it. While Mrs. Chaddock's hands were toiling, her active mind was ever on the alert to treasure up thoughts which were committed to writing after the labour of the day was done. I took much pleasure during my visit in walking around the apiary, and noticed the skill and intelligence which were there manifested in its management. The product of the season was in beautiful white one-pound sections. The profits of the apiary added much to the comfort of the family in the way of groceries, clothing, &c.

Mrs. Chaddock at her death left the farm without debt, and her children educated. The eldest daughter is teaching, and the youngest will soon be through school. Mrs. Chaddock's life was short, but by her untiring energy she has accomplished much. She wielded a prolific pen; evidence of it may be seen in the agricultural, horticultural, scientific, and bee literature of her day. The last effusion from her pen that I have noticed was a poem entitled, 'Whispering Leaves,' which appeared in a late number of the *American Bee Journal*.—MRS. L. HARRISON, 821 *Hulbert Street, Peoria, Ill.*

BEE-KEEPING FOR COTTAGERS.

IX.

Wintering.—By the time these lines are read, feeding should have been completed; and now, if not already done, the further preparation necessary for successful wintering should be made. The conditions for safe wintering may be given as follows:—

(*a*) Dry and well-painted hives; (*b*) Strong stock; (*c*) Sufficient supply of sealed food; (*d*) Winter passages; (*e*) Plenty of packing, quilts, &c.

If stocks have been properly supered and fed, according to directions given, they will now only require *winter passages* through or over their combs, and a liberal application of quilts or cushions.

Winter Passages must certainly not be neglected. When not provided, seams of dead bees are often found after a cold spell of weather, which would not have been the case had the bees been provided with means of reaching the stores in other frames through the warmest part of the hive. Winter passages are provided by cutting a hole in each comb near the centre, and about an inch from the top-bar, with a sharp table knife, or specially-made passage cutter, or by laying two or three

Winter Passage Cutter.

pieces of wood across the frames, ½ in. thick and 1 in. apart, before putting on the quilts.

Quilts.—These may be termed *porous* and *non-porous*, but although I have used both, I here recommended a piece of ticking to be laid upon the frames, and then two or three thicknesses of felt or carpet. Chaff-cushions may also be added, or take the place of one or two quilts.—C. N. White, *Somersham, Hunts.*

ASSOCIATIONS.

IRISH BEE-KEEPERS' ASSOCIATION.

The Committee met on the 3rd inst. Present: Rev. Canon Sadleir, in the chair, Rev. P. Kavanagh, and Mr. Chenevix, hon. sec. A Sub-Committee was appointed for drawing up the annual report. The standard for judging honey proposed by the special Committee appointed for the purpose was adopted. This standard appeared in the *Bee Journal* for November 28th.

THE 'WIND-UP' OF THE WARBLETON BEE CLUB.

This club held its annual meeting on the 2nd inst., when it was to have been proposed that the affairs of this club be 'wound up; but, instead of this, the club's liabilities were brought forward, when the money came pouring out of the members' pockets like water, and effectually washed off every 'score,' and so properly '*wound*' *us up*, that we *go* now stronger than ever.

The first real business of the evening commenced by one member accidentally knocking the chairman's spectacles off the table, and another ditto smashing them with his foot; after which, a general discussion ensued on the bee subjects; altogether, a very enjoyable and profitable evening was spent. Among the subjects discussed was, 'Do high trees seriously affect the flight of bees, or will they surmount them for honey beyond?' The opinion of your correspondents on this matter would much oblige—One of the Members.

BEE-KEEPERS' VOCABULARY;

Or, Glossary of Technical and Scientific Words used in Works upon Bee-keeping.

Effete. *a.* (*L. effetus, er,* and *fœtus,* embryo.)—Barren; not capable of producing young; worn out with age.

Effluvium. *n., plur. effluvia.* (*L.* fr. *effluo,* I flow out.)—Exhalation from bodies or decaying matter causing an unpleasant smell, such for instance as the well-known smell of foul brood; that which in animals and plants makes the matter of perspiration.

Egg. *n.* (*Sax. æg.*)—A body produced in females containing an embryo or fœtus of the same species of insect; the first condition of the bee after it leaves the body of the mother.

Egyptian bees. A race of bees found in Egypt (*Apis fasciata.*)—They are smaller than the Italian bees, of a blackish brown colour and a whitish pubescence, with the first two and part of the third rings of the abdomen of a dark orange colour. They do not gather propolis, but use wax in its place and are extremely vicious.

Egyptian hives.—See *Earthen hives.*

Eik. *n. & v. t.* (*Sc.*)—See *Eke.*

Eject. *v. t.* (*L. ejectum,* fr. *e,* from, and *jacio,* I cast.)—To throw out; to cast forth, or expel; to turn out; evacuate.

Ejected. *p.p.*—Cast out; expelled.

Eke. *n.* (*A.-Sax. eacan.*)—An addition to a bee-hive (North); an additional ring or hoop placed between straw skep and floor-board; half hive placed below the main hive; a raiser (Sc.)

Eke. *v. t.*—To add to; to increase; to place an eke below main hive.

Eked. *p.p.*—Increased; lengthened.

Ekeing. *p.p.*—Increasing; augmenting.

Elevator. *n.* (*L.* fr. *elevo,* I raise.)—Term applied to various muscles of the body, whose action is to lift up or elevate the parts to which they are attached.

Embed or Imbed. *v. t.*—To lay in surrounding matter.

Embedder. *n.*—Appliance used to press in or embed the wires into sheets of foundation to prevent them from stretching.

Embossed sheets.—Term formerly applied to *comb foundation* (*q. v.*)

Embryo, embryon. *n.* (*Gr. embruon,* a fœtus, fr. *embruo,* I bud forth.)—The first rudiments of an animal or plant; the young animal undergoing development within the egg.

Embryogeny. *n.* (*Gr. genos,* offspring.)—Science of the development of embryos.

Embryology. *n.* (*Gr. logos,* discourse.)—Science which treats of things in embryo state; study of the embryo and its development.

Embryo-queen.—Applied to queens in their rudimentary or undeveloped state.

Emerge. *v. intr.* (*L. emergo,* I issue.)—To rise out of a covering or surrounding substance; to issue or proceed from.

Emerging bees or brood.—Young bees which have undergone all the changes from the egg to the perfect insect, and are just leaving the cells in which they were raised.

Enbibing. *n.* (*M. E.*)—Absorption (*q. v.*)

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements.)*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

'CURES FOR BEE AND WASP STINGS.'

From a Letter in the 'Eastern Daily Press,' September, 1883.

'To the Editor.

[2393.] 'Sir,—Your London correspondent says, "It has been settled to the satisfaction of every reasonable being that to cure a sting you should apply onions or laundress's blue." I am afraid, then, that I am not a reasonable being, for I have no faith in specifics for stings. For experiment's sake I have tried onions, laundress's blue, ammonia, laudanum, vinegar, plantain leaf, tobacco juice, whitening, damp earth, the juice of the honey-suckle berry, Dr. Pyne's lotion, &c., and I find that one is just as good as the other. Many people, perhaps most, fuss and fume, and get excited over a trifling sting, rub and scrub the place till their whole bodies are in a fever, and to judge from the horrible accounts we read in the newspapers, England might be the land of tarantulas and scorpions.

'*Apropos* of the value of onions. To see delicate ladies champing "young spring onions" is "too utterly utter." Every one who has eaten a stew or a curry knows with what persistence those "pearly" bulbs assert their presence, somewhere or other, for days. People have no occasion to ask, as of Cleopatra's costly cup, "*Is the union here?*"—they know it. But onions have other value besides flavouring ragouts and your palate; they are said (so I have read) to give the blooms of roses increased colour and brilliancy if they are dug into the ground close to the roots of the bush. While in Switzerland, years ago, I learnt another use of onions. It was my office to read the Burial Service over the bodies of three persons who had died of Asiatic cholera. At one of the funerals I had some talk with the sexton, and he asked me whether in these dangerous cases I used any precautions against infection, and on my saying that I did not, he advised me to do as he did, namely to chew an onion. So that here you have bee-stings and wasp-stings cured, your rose-blooms made beautiful, perhaps not for ever, and all danger of infection warded off by a bulb held in your mouth. What more would you have? If, however, you ask me whether I believe all or any of this, my answer must be "*Credat Judæus Apella non ego.*" I am, sir, yours truly—J. LAWSON SISSON, *Edingthorpe, September 17th*, 1883.

'P.S.—Since writing the above I opened the *Bee Journal*, and find in it an account of an inquest on a Miss Arkwright, of Mark Hall, Marlow. It seems she had been stung on the little finger; she died in half an hour after. The surgeon said that "death had ensued from syncope, produced by being accidentally stung by a wasp," and a verdict was given accordingly. Now, I doubt very much as to the pain being the cause. It was fright. It is stated that she was very nervous about it. Every one knows the story of the condemned French prisoner, upon whom an experiment of dropping water upon his arm, made him believe that he was dying from loss of blood. He really died. I cannot vouch for the truth of that story, but when I was a curate at Monmouth, many years ago,* I buried a prisoner from the jail who undoubtedly died from fright. After two or three weeks' imprisonment he was senteneed to have twenty-four hours' solitary confinement. He told the warder that he could endure anything but that, and that he felt sure he should die; and die he did, for in the morning he was found dead, sitting on the little stone seat in the corner of his cell.—J. L. S.'

HOW TO GET OUT OF THE DIFFICULTY.

[2394.] From recent issues of the *B.B.J.* I have noticed the B.B.K.A. are urgently in want of funds to clear off the debt incurred at the late Windsor Show. Judging from the vast correspondence that has appeared of late in your *Journal re* Borgue honey, I think a national competition might be arranged, to be held in London on or about Christmas, on the very same lines as that held in Castle-Douglas this year, viz., for 3 and 1-lb. jars run honey (liquid). Section honey could be omitted. Competitors to pay 1s. for each entry, and pay all charges on goods going to London, and also allow the B.B.K.A. to retain the samples, which could be sold for their benefit afterwards, and thus held to reduce the present debt. My object in offering this suggestion is to give not only the Borgue bee-keepers a chance of retaining the reputation they now seem to enjoy, but all others who may consider their produce just as good as theirs. If this competition can be arranged, as I have no doubt in the hands of the B.B.K.A. it will, and thorough practical men appointed as judges, the winners instead of receiving any money prizes will receive the honour, which means money, of having the finest honey in the kingdom. Now, Borgue, here is your chance of coming forward and maintaining your reputation, and your failing to do so means dead beat. To further encourage competition I will give half a guinea.—JOHN DOUGLAS MCNALLY, *Laurencetown, Co. Down, December 9th.*

CROWN-BOARDS.

[2395.] Ever since I commenced to keep bees, I have considered that the method of covering the frames was the weak part of the hive, and that to this point thought should be directed. My little experience in the matter of crown-boards may be of interest to 'Theta' and others who feel that the top of the hive needs improvement. I have experimented for two years with crown-boards. A crown-board in one piece I consider most objectionable. The necessity of uncovering the whole hive when requiring to get at only one frame at once, dubs the one-piece crown-board as a relic of barbaric times.

My crown-board, which has been mentioned in the *Journal* some time back, but which has been much improved since then, consists of three parts, each $17\frac{3}{8} \times 5\frac{1}{4}$. The thickness of the strips nailed round should not exceed $\frac{1}{4}$ in., with $\frac{3}{8}$ in. My bees build brace combs. It would be most difficult to make these crown-boards without a circular saw, since the workmanship must be absolutely perfect. Each part of the crown-board should have a piece of $\frac{1}{2}$-in. wood, 5×2 in., nailed on the top near the end to prevent warping. The nails must be clinched. My middle piece has a 3-in. hole in it for feeding with candy, and other purposes. There should be no jarring of hives caused by removing the crown-board from May to September, a firm, light, and left moveable is all that is required. So little does the removal of the parts of the crown-board disturb the bees that as a rule they only cock their tails. Often they do not stop wook for even this little performance. All my section-crates have crown-boards. When

* It is fifty years ago now.—J. L. S., December 3rd, 1889.

working for extracted honey, they are simply invaluable, from the speed, comfort, and saving of bee-life which they cause. But in early spring bees cannot be kept so snug if crown-boards are used, since in that case division-boards are no use. One great advantage the crown-board has is this, the tops of the frames are always free from propolis.—HIVE.

HONEY: ITS USES.

[2396.] If T. H. A. (2392) has anything of special interest on this subject, many of us would be much obliged if he would send it for publication. I have spent considerable pains lately getting all the information I can, which I will send to the *Journal* when complete; and shall also print it as a circular, and send out with honey I sell. I am certain if good honey in a nice form is sent out and its uses made known, our sales could be very greatly increased.—W. P. MEADOWS, *Syston*.

THE STANDARD FRAME, AND SIZE OF BROOD-NEST.

[2397.] It has been the opinion of many advanced bee-keepers, both here and in other portions of the globe, that the British Association Standard frame is not large enough. This has, no doubt, been noticed as applying not so much to its length, 14 inches, as to its depth, $8\frac{1}{2}$ inches. Although so many have expressed the above opinion, I do not, after trying and seeing tried frames of a different size, at all agree with such, and find, taking all in all, it will be many a long day before we have a frame which so well answers the purpose for which it is intended, both for the honey producer and appliance manufacturer—the latter being of much importance, as if material is cut to waste the honey producer must pay for it—as the present one. Its advantages over such frames as the Quinby ($18\frac{1}{2} \times 11\frac{1}{4}$) must be manifest to all, if only for its adaptability to being handled with ease. No one who has not handled such a monstrous frame can have any idea of its cumbersome proportions, also its weight when even but partially filled with honey. An Association Standard frame is quite heavy enough, when well stored, for practical work in the apiary; anything heavier militating considerably against ease or pleasure when working among the bees.

Having, I trust, conclusively shown that the Standard frame is the most handy of any size frame yet introduced, we must next consider whether other frames having deeper proportions are, or are not, superior, inasmuch as they allow a deeper and larger brood-nest; such a size nest, I must say, I have found answers exceedingly well just at one period of the season. More bees, more honey, is a well-accepted fact among bee-keepers, but not as applying to colonies. As more colonies more honey will not always follow. We want as many bees as we possibly can get just at one time in each hive, and when we obtain that quantity we must allow of sufficient space for their accommodation, and for the accommodation of what their increased numbers will store for the apiarist. It will not do for the bee-keeper to increase his brood-nest and decrease his storage room, both must be increased, or adverse results will accrue. If we increase the nest and decrease the storage during the height of the breeding season, we have swarms. If we increase the storage very much beyond the bees' requirement, and reduce the nest, we dishearten the bees. This is being frequently done by many beginners in their endeavours to increase their harvest, thus obtaining opposite results to their desires. The point to be aimed at is to increase the brood-nest just before the desire for swarming takes place, that is when the hive is very full, but not 'boiling over' with bees, which, with a strong colony having a very prolific queen, and in a condition to show good results during the ensuing season, will be found in the southern counties to be about from the second to the third week in May. Just at this period the horse-chestnut is in bloom, and the evidence of the colonies' desire for increasing their strength is very marked. At this time a suitable colony will be found to be increasing the depth of the top-cells in the frame, and by so doing decreasing the brood-nest. This is the time when it ought to be increased rather than decreased, that in about three weeks hence—clover being then in full bloom—there will be plants of bees watching out to gather in this harvest. If we now take a shallow frame super, spacing the frames to correspond exactly with those in the brood-chamber, we materially increase its size, and instead of the bees storing their early surplus in the brood-nest, they do so in the top cells of the shallow super; the queen thus being gradually allowed to extend her operations until she enters the super and utilises the greater portion of that for brood (worker) rearing. By these means we get a very large number of bees hatching out just as the main honey crop becomes due. Care must now be taken to enlarge the hive at the first evidence of the full honey flow, the first section rack being placed on the top of the shallow super, and subsequent ones added as quickly as allowable underneath the preceding one so placed. I had five on one hive last season, from which in this manner I took 140 lbs. of surplus without disturbing the body-box of the frame.

It has been advised before by certain American bee-keepers to have the brood-nest in two parts, dividing such at the honey flow, and placing the supers between these divided portions. I have not succeeded so well with this latter plan as with that adduced before: in fact, by the division of the brood-nest I see little advantage: but by a seasonable enlargement we reap numerous ones, allowing such enlargement to continue until the queen, gradually reducing her sphere of action, leaves the shallow super, which can be removed when this takes place, and a nice lot of late honey extracted from it.

None of these manipulations can be performed successfully with a weak stock, or with a colony having a queen with waning powers. The colony must be strong, and the queen of great prolificness. When this is the case, it will well answer the bee-keeper's purpose to treat his stocks in the manner here described.—W. B. WEBSTER.

STANDARD OF MARKS FOR JUDGES.

[2398.] It is to be hoped that the Irish Bee Association will think twice and three times before they accept the standard prepared for them by their sub-committee. It is altogether too elaborate—perhaps I should say too 'finikin.' It opens with a most objectionable expression —'get up.' That may be Irish; it certainly is not English. 'Get up, not including ornamentation.' 'Ornamentation' is a word to which Ruskin has resorted, but something shorter and simpler, though not necessarily vulgar, might surely be substituted.

These are the points which the judge must duly try and duly weigh before he pronounces his fiat. 'Get up, not including ornamentation; completeness, evenness of comb; completeness, colour of sealing; uniformity, similarity, colour of honey, flavour, aroma, consistency, economy, originality.' What a list! It's surely enough to take one's breath away! I remember on one occasion judging a class in which there were sixteen entries of fifty pounds each. I found then, as I have found since, that a few distinctions with high marks are better than a very elaborate system which breaks down under the pressure of a great amount of work to be done in a short space of time.

When I read the long list of marks, as given in the

first schedule, I could not but recall a tale which I once heard told at a public dinner by a Nonconformist minister, in replying to the toast, 'The Bishops, the Clergy, and the ministers of other denominations,'—a tale which will, I think, bear repeating:—

'An excellent but rather long and tedious local preacher was conducting a service. First he prayed for the Queen, that every blessing might descend upon her. Need I say that all present ejaculated fervent amens? Then he proceeded to Prince Albert, and the same earnest responses were heard on all sides. Next he took up the Prince of Wales, and invoked all the blessings of earth and heaven upon him. Earnest ejaculations and the "loud amen" were still to be heard. The good man then went slowly on to each member of the Royal Family, mentioning them by name and exhausting all his limited powers of language in his pious entreaties. At length an earnest but too honest Methodist, unable to restrain his impatience, exclaimed, "Lump 'em!"'

So I venture to suggest to the Irish Association, especially with regard to the marks and distinctions in the first schedule, that they would do well to 'lump 'em.' —'JUDEX DAMNATUR CUM NOCENS ABSOLVITUR.'

COMMUNICATION BY BEES, ETC.

[2399.] In your issue of 24th ultimo you suggest 'aural communication' as the probable means whereby the sentinels at the entrance of a hive are enabled to distinguish between members of their own colony and strangers from another seeking admittance.

It may be so, but I scarcely think it. Is it not rather by sight, think you? Bees fly direct for the entrance to their own hive, or at least make direct for it after landing on the alighting-board. Strangers dodge about, and does not their hesitation serve to put the sentinels on the *qui vive?* That, at least, seems to me the most probable solution of the question.

But, leaving speculations, I now want once more to ask your opinion on practical matters. We have had till now four weeks of exceptionally mild—even warm—weather for the season, and my bees have been daily most industriously working the ivy blossom, which is most abundant this year. On many days (as this day, for instance), the entrances to the hives are crowded, and the hum of the returning workers may be heard many yards away. There must have been a great addition to the stores, I should think, beyond the extra consumption caused by such abnormal activity for the season: and, I presume also, no small addition to the population, though I have not cared to disturb them since I made them up all snug for the winter. How are any young bees lately hatched, or now hatching, likely to stand the winter, do you consider? Is there any need to remove any frames containing comb not fully sealed?

On a former occasion I asked your advice how to get rid of moths and moth grubs. For a long time they resisted all my endeavours entirely to extirpate them, but I hope I succeeded at last. Now I want to guard against their return. Would you advise putting a piece of camphor above the packing on the frames? In most of my hives I have covered the frames with stout American cloth, with cork-dust in bags over that, leaving the entrances wide open.

This year I have grown a good deal of borage from successive sowings. It has been in profuse bloom all the summer, and is so still, and the bees are always at it.

I think the losses of stock last winter have to a considerable extent been made good to those who saved any this year. Personally I have done fairly well, but I am nowhere as compared with many who give you the reports of their doings. I end the season with only eight stocks, all, as I think, healthy and fairly strong.

Trusting that you will kindly give me the benefit of your opinion in reply to the above queries.—G. S. C., *Hythe, Southampton, Nov.* 18, 1889.

[It is generally acknowledged that communication is made by means of the antennæ, but whether such communication is aural or otherwise is a much disputed point. There are authorities on both sides. The ingathering of stores during the recent mild weather will not make up for the consumption. Do not disturb the frames on any account, but, to make assurance doubly sure, place one or two cakes of candy on top of the frames, covering all up snug. The young bees will get along very well. Cleanliness is a great safeguard against moths. Never let them again get a footing, but take decisive measures on the first signs of one. Try the camphor on the floor-board.]

APIARY WORK: NO CHILD'S PLAY, BUT REGULAR WORK.

[2400.] I would as soon be stung by a bee as be 'bored' by an individual who wants to talk bees, and only knows that they 'make honey' and have a terrible sting. I have a neighbour who, several years ago, captured a very large swarm of bees, and they have increased considerably since. This woman wants me to tell her what to do; and when I offer her books and papers, refuses them, saying, 'I have no time to read them.'

Of course she has all the time that there is, and prefers to use it in making fancy articles to adorn her home and person rather than in studying bee-culture. When her bees swarm she wants me to hive them. This I cannot do, for while away hiving her bees I might lose my own; also to take off and put on surplus boxes. She wants the profit derived from keeping bees, but does not want the work of self-denial necessary to it.

'Good morning, Mrs. Harrison; I've come to spend the day with you, and ask your advice about my undertaking to keep bees. I must do something to earn some money, and I've noticed you, as I passed by, working with bees, and thought I might kept them, too. Do you ever get stung?'

'See here, my friend; I'm a busy, practical woman, and no time to sit down. I've a day's work to do in the honey-house, and if you want to learn about the business, I'll loan you a wrapper and an apron, and you can help. I'm not quite ready to go there yet. Suppose you start the fire in the honey-house; you will find the kindling and coal there already.'

'I never could build a fire, and it will spoil my hands, so I cannot crotchet this beautiful white phantom. I do love fancy work, but I make so little money at it.'

'You may as well know, right now, that bee-keeping is no child's play—plenty of hard work, and, if you choose to make it so, disagreeable. I have lived long enough to learn that every way of earning money has sooner or later its sting. In your fancy work, it's poor pay—you can scarcely earn the water that goes into your soup. You seem to like sitting in an easy chair, with some one to keep fire for you, while you run your fingers through that delicate wool. But the pay is where the shoe pinches.

'I am now ready to work in the honey-house, and you can come if you choose. The work that I shall do to-day is as much a part of running an apiary as hiving swarms.'

'Can I bring my fancy work and watch you?'

'No; you can either help work or stay in the parlour, or go home. It's no place for fancy work. Here is some work that you will be glad to do if you ever keep bees, and that is, to remove these sections from this case—glad that you have honey for your work. Take this

wide chisel and scrape off the propolis and comb from top to bottom; now with this thin-bladed case-knife loosen the sections from the case all around: put these two little pieces of pine board on the table for the ends of the case to rest upon, and turn over the case. Take this little piece of board, which I call a "follower," and lay it across one row of sections, and tap gently with the hammer.

'Go over every row of sections in this way. Now they are all slipped down into the space made by the little sticks. Lift off the case—see! you were not careful enough; you let the corner of one section dig a hole into the face of that section, and now it cannot be packed as No. 1, for it will run and daub up a case. See, I have made a pan of manilla paper and fitted into the bottom of this shipping-case. If there should be any drip, the pan catches it, and keeps it from running out of the box and making a dauby mess. Put all the perfect sections in it which will be marked No. 1, and the imperfect ones into that pan, and they will be sold to customers who come here.

'This is one of the beauties of a home market; all pieces of comb honey like the section you broke just now are never allowed to accumulate, but are sold for a less price than No. 1 sections to persons who call to buy.

'Scrape off the propolis and bits of comb from the table into this all-metal sieve, and set it over this pan; I will pour boiling water over it, and put it into the oven. You will be surprised at the pretty, light-coloured wax which will run down into the water from this refuse. We must not forget it, or it will run over as soon as it boils.

'Here it goes now. I will remove the sieve to another pan, and set this out to cool. As the wax is all melted now, I will scrape the residue into a paper, and keep it to start the fire in the morning; for if I put it into the stove now, it will make a roaring hot fire, and cause that other pan to run over, and the burning wax would soon fill the house with bees unless the door is kept shut.

'Look at the first pan of wax, how pretty it looks now it is cool. I will pour the water from under it. Some day I will re-melt the wax, and cool it in tiny cake-pans, which make little cakes that sell from here to laundrywomen for a nickle apiece. The large cakes are sold to druggists who deal in oil and paints. There are sun wax-extractors, which are lined with bright tin and covered with glass. The product from these sells for a few cents higher than when melted with fire heat. These are used exclusively in California for both honey and wax. The wax will be in a cake on top and the honey underneath.'—(Mrs.) L. Harrison, *Peoria, Ills.* (*Prairie Farmer*).

DO CASTS BUILD DRONE OR WORKER COMB FIRST?

[2401.] I beg to thank you for replying to my last letter, but I still remain in the same opinion as before.

I have kept bees for a good many years now, and study their habits closely, and have taken particular notice of the circumstances alluded to by Mr. Webster. My plan with casts I do not intend to keep is to place them close to their original stock, and when the latter have all the surplus queens thrown out, which is generally about the third or fourth day, return the cast in the evening.

Next morning I invariably find one of the queens thrown out. I then place the comb built during these days into sections, and put on the super, which gives them a good start with their work at once. Now, with two Stewartons treated in this way, I found that the comb built during these three days was *worker*, not drone, as Mr. Webster asserts.

Another cast which I kept till autumn was put in a bar-frame hive, and built *worker* comb until the seventh frame, when they had a small piece of drone comb. I observed the queen of the latter out for at least five days after being hived, so that it was worker comb which was built during the time she was unmated.

According to Mr. Webster, drone comb is built first with casts, and I contradict that statement, as I have always found it to be the very reverse. I am sorry troubling you again, but it would give me much pleasure to have the opinion of some of the advanced bee-keepers on this subject through your *Journal*.—M. Service, *Clutha Villa, Barone Road, Rothesay, Nov. 26th.*

One Single Pound of Honey.—A man of business, with his eye on 'the main chance,' has his excuse for every bit of energetic outburst or thoughtful economy on his part. He has heard that 2,500,000 clover-tubes have to be sucked by industrious bees to produce one single pound of honey; so every customer, however trivial his requirements, is carefully attended to, for he is determined that no clover-tube shall remain unsucked by him.—Trifles, in *Leisure Hour* for November.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

A. Emery.—*Feeding Skeps.*—If your skeps weigh about 15 lbs. each, you need have no fear of their having plenty of food for the rest of the winter; but if they weigh much less you should place a cake of candy over the hole in crown of hive, covering it well with some warm coverings, another skep being placed on top to keep all snug and bee-proof from outsiders. You can only obtain a knowledge of the condition of their commissariat by weighing either by scales or with the hands; we always use the latter.

Sandringham Hive.—*Moving Bees.*—It will be most unwise to remove the bees from their hive at this season of the year. Place two pieces of wood over the quilts along each side above where the frames rest on side of hive, and screw them down tightly at each end; this prevents the frames from shifting. The perforated zinc over the entrance will be sufficient ventilation at this season. You can secure the comb that has recently been broken out of frame by placing four sticks between that and its contiguous frames, withdrawing them at a future time. The combs will not require tiering in: this is only necessary in warm weather, or when a hive is very full of bees or combs are very new. By these means you can place them in the furniture van, and simply lift them out and place in proper position at journey's end, leaving them thus until warm weather allows of unpacking.

J. W. S.—*Foundation.*—We prefer natural-based foundation, weighing about ten sheets to the pound, for wiring into frames, but twelve to the pound are in use by some.

C. Link.—1. *Bees on the Wing.*—They were merely having a cleansing flight, which you may expect them to do if the temperature rises to 50°, even if there is no sun. 2. *Transferring.*—We would recommend you to get a copy of Cowan's *Guide*, where the detail is fully explained. The best time is about the middle of April.

E. Baker.—*Heather Honey.*—We have examined the honey, and should say it is the genuine article, and what it professes to be, but not heather honey of the *finest* quality and flavour. We have tasted Scotch heather more delicate in flavour. For 1888 honey it does not seem to be at all bad, but marketable.

RAITT'S CELEBRATED FOUNDATION.

THE Trustees of the late WM. RAITT beg to announce that the business is being carried on under the management of his Nephew, who is prepared to receive enquiries and orders for this **WELL-KNOWN MAKE OF COMB FOUNDATION.**

Address WM. MONAIR, BEECROFT, BLAIRGOWRIE, N.B.

THE Trustees have also to announce that they are prepared to dispose of the Business, with Goodwill, Plant, and Premises, so long and successfully carried on by the late Mr. RAITT.

Applications to WM. GIBB, UNION STREET, EAST NEWPORT, FIFESHIRE; or to WM. RAITT, WOODBURN GREEN, MAIDENHEAD, BERKS.

The British Bee-keepers' Association.

IN accordance with the intimation given in the last Report of the Association, a fund was opened early in the present year to enable the Committee to meet the necessary expenses attending the Exhibition held at Windsor in June last. At a recent meeting of the Committee it was resolved that, in consequence of the exceptionally heavy work and expense which the Association had been called upon to undertake during the present year, this fund should be extended for general expenses. During the current year it has been found desirable—

(1) To oppose the several Railway Companies in their proposals to obtain powers for charging excessive rates for the carriage of honey and bee-keeping appliances under the Railway and Canal Traffic Act: a still further outlay is needed under this head.

(2) To amend the rules and regulations for conducting examinations.

(3) To hold an Exhibition of Honey, &c., at Horsham, in connexion with the Bath and West of England Agricultural Society, &c.

The Committee are unable to meet their current accounts as readily as they could wish, whilst additional work, such as the printing and circulation of useful pamphlets, &c., cannot be undertaken through lack of funds.

£45 of this fund has been absorbed in the expenses attending the Windsor Exhibition. Several subscriptions have since been received, making the total amount nearly £60. This sum is, however, far short of the Association's needs; at least £100 ought to be raised. The Committee urgently appeal for support in their work. Subscriptions should be forwarded to the Secretary, Mr. John Huckle, Kings Langley, Herts.

THOS. W. COWAN, *Chairman.*

November, 1889.

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Editorial, Notices, &c.

EMINENT BEE-KEEPERS.

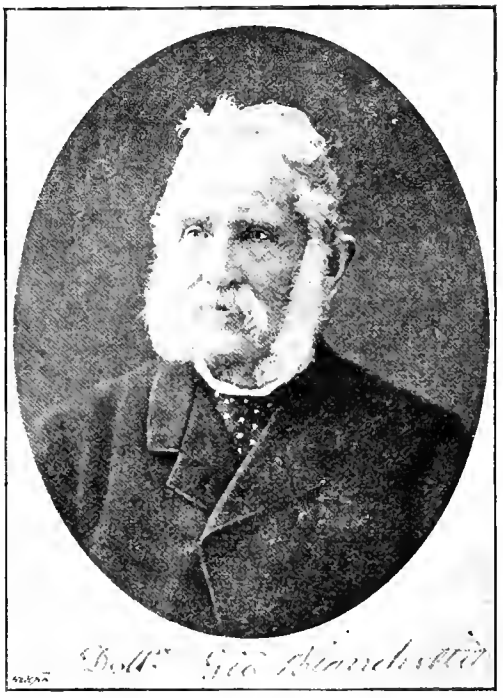
No. 18.—DR. GIO. BIANCHETTI.

Amongst the bee-keepers of Italy stands prominent the name of Dr. Bianchetti, who was born in February, 1809. His father, a native of Ornavasso, after having served in the corps of the Gardes of Honour, under Napoleon I., entered the marine hospital at Venice as chemist-major.

At the downfall of the Napoleonic empire he returned to his country, and opened a pharmacy at Domodossola, where he soon became renowned as a distinguished chemist and agriculturist, having published several works for which he received well-merited honours.

Dr. Bianchetti chose the medical profession for his career, and took his degree at the Royal University at Turin in 1831. After that he practised in conjunction with Prof. Tommassini of Parma, of great renown at that time, and Drs. Gosse and Coindet of Geneva. He then practised in Domodossola, where he for many consecutive years fulfilled the duties of syndic or chief magistrate.

He gave up his practice for politics, and took his seat in the Chamber of Deputies. He was re-elected on the transfer of the capital to Florence, but owing to its great distance he found family comforts so interfered with that he gave up politics, and, on the death of his father, he left Domodossola and retired with his family to Ornavasso, where he lived a quiet and retired life, making himself useful to his neighbours and the commune, and was always ready to give gratuitously medical advice.



DR. GIO. BIANCHETTI.

Until 1868 he had not taken to bee-keeping, although as long as he could remember there were bees kept in his father's garden. However, by chance in this year, when he was staying in Milan, he met a friend who had attended some lectures given by the Central Society of Apiculture, which had been founded in that city the previous year, and where he had learned the first principles of rational bee-keeping.

This friend started an apiary, and invited Dr. Bianchetti to visit him, who, after earnest conversation, decided to embark in bee-keeping himself, believing that, carried out on rational principles, it was a pursuit not only agreeable but also profitable. The first idea has been completely realised, but not the second, owing to absence of bee pasturage in the district of Ornavasso. He procured half-a-dozen improved hives on the Dzierzon principle, which were in the spring tenanted by swarms from common hives.

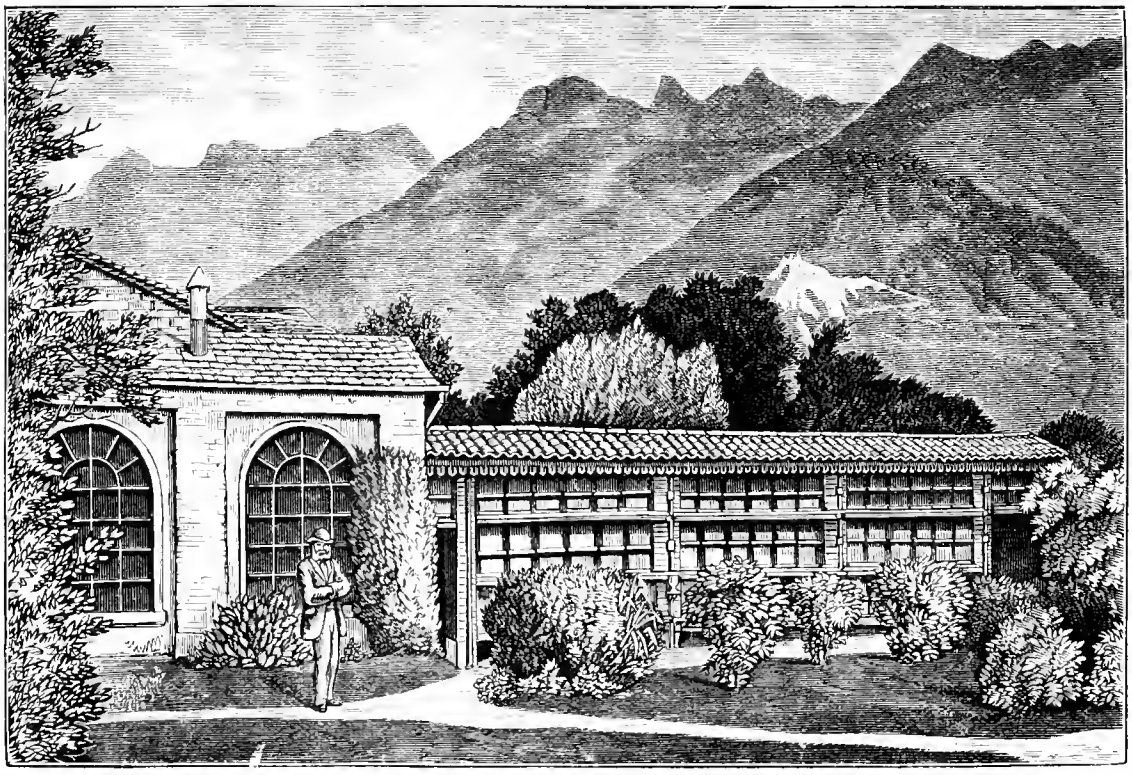
The season was a good one, and the harvest made him like the chosen occupation more and more, and not even his failure from want of experience, and the numerous stings he received, had the slightest effect of disheartening him.

In December of 1868 he attended the second meeting and exhibition of the Society, and from that time he became a regular attendant, having been elected President at nearly all of them. This year he found another teacher at Milan. This was Major v. Hruschka, the inventor of the honey extractor, who gave two very instructive lectures. During the four days of the exhibition so eager was Dr. Bianchetti to learn, that he was found constantly by his side plying him with questions, which were always cheerfully answered with an evident desire to teach. He purchased a Fumagalli hive at the Exhibition, but like all novices who think they can improve, Dr. Bianchetti introduced modifications, and with these alterations he had a good many constructed for use. He introduced a bottom-bar to the Fumagalli frame, a super with frames, and a partition between it and stock hive.

From the time he took to bee-keeping, he endeavoured to do his best to popularise the science, to facilitate operations, and cheapen appliances, so as to place them within reach of the country people. With this object in view he invented a hive called *Mezzainola*, which he exhibited in 1870 at Pallanza. At this Exhibition he received the first prize (a gold medal) not only for his collection of objects exhibited, but also as being the introducer of good methods of bee-keeping into the country, by example, precept, and advice to beginners. He used the three above-mentioned hives, and a queen-rearing hive of Rauschenfels until 1872, when he devised another sort of hive, combining ease of manipulation, cheapness with mobility of frames, and having a moveable top.

At that time he had a prejudice against moveable tops, but driving bees had shown him that the inversion of the skeps did not bring with it all the bad results he had imagined. At the Exhibition in 1871 he showed his hive, which he called *Contadina;* but as the German type of hive was the favourite one, with top and floor-boards fixed, this hive was not noticed. It was at this meeting that the first Congress of Bee-keepers was held, and Dr. Bianchetti was elected president.

The good results obtained with this hive induced him to have many constructed, and so he had an opportunity of comparing the different results. Thus he was able to recognise the superiority of this hive over the others, generally admitted by those who use them. To cheapen the hive, Dr. Bianchetti adopted an idea of



Colonel Crema, which was to construct it of the cases in which the tins of petroleum came from America; and recognising the principle of giving honour to whom it was due, this hive was called 'Petroliere Bianchetti-Crema.'

With similar materials he also made a Langstroth hive and other bee-keeping appliances, which he showed at Varese in 1886.

For the last two years he has colonies in Dadant and Langstroth hives made of the same materials, and the small number of bees which died during the winter compared with other hives has astonished him. He attributes it to the form of frame and its position (cold system). He has been a constant correspondent to the *Apicultore* and other journals, and has published *Brere istruzione pratica sul modo di usare l'arnia economica a favo mobile proposta ai contadini*, and *Sciamatura artificiale e progressiva del Signor Vignole*. He was the first to adopt and practise with his friend, M. Beldi, the Vignole system of swarming, and has been a warm partisan of this method. At the request of the Turin Agricultural Society he has given lectures on this system of swarming, in conjunction with his hives, which have served the useful purpose of still further popularising bee-keeping. In 1879 Dr. Bianchetti received another medal and a special diploma for *services rendered to bee-keeping*. In 1874, having declined to serve as chairman, he was unanimously elected honorary president of the Society.

In 1886 we visited Dr. Bianchetti at his residence, with our friend M. Bertrand, and witnessed the energy and enthusiasm of this veteran bee-keeper. We presented a view of one of his apiaries, which we described on page 579 of the *B.B.J.* Owing to the scarcity of bee pasturage, Dr. Bianchetti is loth to increase his apiary, but his son, who knows that to this occupation is due Dr. Bianchetti's present vigorous health, had persuaded him to increase the number of hives kept, so that at the present time this apiary has been considerably enlarged. As a matter of fact, although Dr. Bianchetti is in his eighty-first year he enjoys perfect health, his occupation affording him healthy exercise for body and mind. The pulse is steady and the eyes are still able to discern the tiny egg at the bottom of the cell without the aid of spectacles, and the limbs are sufficiently steady to enable him to rest on the ladder by which he has to reach the third storey of his bee-house. He performs all manipulations himself, with the exception of lifting heavy weights, which are done by an assistant, who, from his constant attendance on Dr. Bianchetti, should be a second 'Burnens,' but who is quite the reverse of this.

The apiary at Ornavasso is open to all, and many persons of distinction have visited it, amongst others His Excellency the Cardinal de Hohenlohe, who has established an apiary at his princely villa at Tivoli, near Rome, from the advice given and information supplied by Dr. Bianchetti. We hope Dr. Bianchetti may enjoy many more years his favourite pursuit, and continue his usefulness and fatherly care of those amongst whom he lives at Ornavasso.

NOTICE.

On account of Christmas Day falling on our usual day of publication, the next issue of the *Journal* will be published on Monday. All communications and advertisements must be received not later than Saturday first post.

ROYAL AGRICULTURAL SOCIETY.

We have had forwarded to us for publication the report of the judges at the Windsor Show. In the general report we find a historical account of the different departments that have been added from time to time to that of farm produce pure and simple. Referring to the 'Bee and Honey Department,' the report states:—

'Honey may be considered as a farm product. It has been recognised by the Society as such since the Kilburn Show, where the exhibition of honey, bees, hives, and manipulation with bees, was most interesting and instructive. Since Kilburn there have been frequent similar exhibitions at the various shows, at which the entries and the interest have steadily increased. Prizes have not been given by the Society, though every opportunity of arranging their exhibitions has been afforded to the British Bee-Keepers' Association, by whom prizes have been offered.'

At page 757 we find the following:—

'Bees, Hives, Honey, &c.

'However energetically the "little busy bee" may work, it cannot store up good honey if the spring and summer months are not favourable for flowers and the development of sugary qualities. Fortunately for the Windsor honey exhibition, the spring of 1889 was exceptionally fine and warm. It is said or sung:—

> "A swarm of bees in May
> Is worth a load of hay.
> A swarm of bees in June
> Is worth a silver spoon."

'May, in this year, was unusually genial and swarm-inspiring. Many of the swarms from which the Windsor honey, so delicious and fragrant, was derived were, without doubt, evolved in April, also very warm and flower-productive, though April is not included in the poetic category of honey-making months, it may be, on account of rhythmic difficulties.

'To those unacquainted with bees and their habits, it is curious to learn that sainfoin flowers do not make such good coloured honey as those of clover. Many, probably, also, do not understand the important services of bees in the fertilisation of plants. If this were their sole use, it would pay agriculturists over and over again to keep them; but there is the honey into the bargain, from which considerable profit may be made.

'There were 152 entries of honey at Windsor, and 113 entries of hives and other appliances connected with bee management. At Kilburn, in 1879, there were only 59 entries, of which only 20 were of honey.

'The judges of hives, honey, and bee appliances report as follows:—

'*Report of the Judges of Hives, Honey, and Bee Appliances.* [Classes 77 to 98.]

'The bee season of 1889, from its very marked contrast to that of last year, has afforded to bee-keepers a favourable opportunity for proving the superiority of the modern system of bee-keeping over that followed in years gone by.

'Had so disastrous a season as that of 1888 occurred prior to the establishment of the British Bee-keepers' Association and its kindred offshoots throughout the country, we are probably within the mark in asserting that not more than 20 per cent of the bees in the United Kingdom would have survived. As it is, the loss since last year has been enormous; but, in the great majority of cases, it has arisen from causes quite plain to, and easily guarded against by, those who have made themselves acquainted with the principles of bee management on the modern system.

'Nothing could have more clearly demonstrated the progress made in the method of managing bees than the fine display of honey shown at Windsor. Owing to the early date—so far as honey is concerned—on which the show was held, the quantity of honey staged was as remarkable for its extent and completeness as for the rapidity with which it was gathered by the bees and prepared for exhibition. The number of honey exhibits more than quadrupled those of last year, and the quality was very good, especially in the class for extracted honey. The class for one-lb. sections of comb honey was also fairly well filled, but the general appearance was not quite so attractive as we could have wished, owing to the fact that the larger portion of the exhibits was from sainfoin districts. Comb honey from this source, though excellent in flavour, has a yellow look not altogether pleasing, compared with the delicate, creamy white of clover sections.

'The occasion was made memorable by the visit of Her Majesty the Queen to the bee department, accompanied by the Prince of Wales and several other members of the Royal Family. Her Majesty was received by the Baroness Burdett-Coutts, President of the British Bee-Keepers' Association, and several members of the committee of that body, and it must have been very gratifying to these gentlemen when their chairman was enabled to offer, on behalf of the Association, for Her Majesty's acceptance, a fine sample of this season's honey in the form of a device from the prize collection, containing the initials of the Royal Agricultural Society, together with the words "Jubilee, '89," worked by the bees in honeycomb, and filled with beautiful sainfoin honey. The novel present was graciously accepted by Her Majesty, who seemed much interested and pleased with what she saw in the bee department.

'Turning to the bee appliances, there was a falling off in the number of entries compared with Nottingham, only 96 exhibits being staged, against 123 at the latter place. Last year there were no less than ten entries in the Class for Collection of Hives and Appliances, and these in themselves made quite an imposing and effective display. At Windsor, however, only four collections were staged; the difference leading us to suppose there must be some objection on the part of exhibitors to the strict lines laid down in the schedule for their guidance. If this be so it is worth considering whether something cannot be done in future to encourage a larger entry in this important class.

'We were pleased to note a welcome change in the quality of the goods shown in Classes 80 and 81, for hives not to exceed in price 15*s.* and 10*s.* 6*d.* respectively. Last year hives were staged in these classes worth far more than the value placed upon them, and the judges did not fail to take note of the fact. This year we had no fault to find in this respect, and it gives us pleasure to say that it was at no sacrifice of efficiency; some of the hives shown being superior for practical work to those shown at Nottingham.

'On the whole, the Appliance Department, though not so well filled as last year, gave evidence that manufacturers are ever on the look-out for anything tending to facilitate work among bees, and excellent appliances for every purpose connected with bee culture can now be had at prices within the reach of all.

'We cannot close this report without drawing the attention of farmers generally—or such of them as take an interest in bees—to the lesson taught by the past season. It has been conclusively shown that bees can be kept alive and in good health—no matter how bad the season may be—by any one who will give them a little of the care and attention required by any other

kind of live-stock. On the other hand, it has been just as conclusively proved that bees, if left to shift for themselves at a time when no natural food can be had, will as surely die as sheep or other cattle would if left foodless and uncared for. When this simple fact is recognised and intelligently acted upon, the agriculturist will have as little dread of a bad bee season as the most skilled bee-keeper of the day.

W. Broughton Carr.
Walter Martin.
William Bush.*

SWARMS. UNSEALED BROOD TO PREVENT SWARMS FROM DECAMPING.

Will unsealed brood prevent swarms from leaving the hive in which they are placed? is a question I am often asked. This used to be thought a sure preventive, and many even at the present day think that if they put unsealed brood in a hive that is to be immediately occupied by a swarm, that swarm is sure to stay. However, the many reports would seem to indicate that all do not have success with the plan, for, during the past year, I have noticed no less than six different reports where bees had absconded and left such brood when placed in the hive to keep them where hived. My own experience also proves that, with first or prime swarms, the placing of brood in the hive they are to be hived in, only enhances the chances of their leaving, rather than proving a preventive.

Previous to 1871 I had never clipped any of my queens' wings, and was often fearful that my new swarms might desert the hives they were placed in. During the spring of that year I read that a frame of unsealed brood, placed in the hive at the time of hiving, was a sure preventive of the swarm's decamping. This was read with enthusiasm, as here was a plan by which my fears could be entirely removed. Consequently, when my first swarm issued, I hastened to get a frame of brood in all stages, which also contained some honey to start them in housekeeping, as we used to be told was necessary to do. They were hived about 2 o'clock p.m., and I went to bed that night feeling that my first swarm of the season was well provided for, and would be sure to stay.

The next morning I looked at them, and went to work. At about 9 o'clock the cry, 'Bees are swarming,' was heard, and upon reaching the bee-yard my new swarm was seen going for parts unknown. My lips were bit as I thought of some proper form of sound words to vent my spite on the author of this plan of keeping swarms from absconding, while I resolved that every queen's wings in the yard should be clipped, which was done without delay.

Since that time I have frequently hived swarms, and given them brood by way of experiment, and have had many of them come out, but as their queen could not fly, of course they could not abscond. Still, probably three fourths of the swarms hived in this way stayed and worked all right, while not one in twenty hived without any such precaution bothered me in attempting to leave.

Hence, my experience goes to prove that unsealed brood will not prevent swarms from leaving, but, on the contrary, makes the probability of loss greater, as I said in the start.

'But,' says one, 'bees ought not to leave unsealed brood.' Why not? They do when they leave the parent hive in natural swarming, the brood apparently being an incentive for their leaving, for, if we take the brood away from them at about the time they are ready to swarm, it will stop their doing so.

Upon examining the hive from which this first swarm decamped, I found they had built two pieces of comb as large as a hand, and had built queen-cells upon the frame of brood, in which the queen had deposited eggs: thus showing that they considered the conditions the same, or nearly so, as they were in the parent hive from which they had issued the previous day.

There were also nearly enough bees left with those returning from the fields to care for this frame of brood, this also proving that bees were left behind to take care of the old colony, the same as is always done after a prime swarm issues from any hive. I therefore conclude that those who advise the giving of brood to all prime swarms are labouring under a mistaken notion, and I advise all to go slow in trying any such plan.—G. M. Doolittle, *Borodino, N. Y.* (*American Bee Journal.*)

* The fourth judge of the Bee Department, Mr. Henry Yates, unhappily died before this Report was prepared.—[Ed.]

BEE-KEEPING AS AN INDUSTRY.

With all the clamour for the utilisation of every square foot of the food-rearing surface of Great Britain, it is curious that so little attention has been paid to a certain important article of diet of which, during the summer months, a vast amount is allowed to perish simply from lack of the means of collection. If it could all be gathered and garnered, the raw material for honey yielded by the flowering plants of these islands would greatly exceed in money value the total worth of all the other kinds of food which they produce. This raw material is, however, very perishable; and while its flow—especially under the influences of southern and western winds and warm sunshine—is abundant and continuous, it is under the same influences soon wasted if left ungathered. In no possible circumstances could all of it in a given district be gathered by bees, however overstocked by bees that district might be; and, besides, a considerable margin of excess in the supply must be allowed to enable bees to gather the maximum quantity corresponding with their numbers. Skilled bee-keepers opine that on a warm and sunny day a twenty-acre field of young grass containing an average quantity of white clover blossoms would yield the bees at least 100 lbs. of honey, and an equal surface of heathery moor about double that quantity. Making allowance for bad days and the honey consumed by the bees in idleness, it is therefore quite within the mark to suppose that in average years the actual yield of twenty acres of clover pasturage might attain to 1000 lbs., and in the case of heather double, or more than double, that amount. The money value of these respective areas—as regards their honey-producing capacities—may therefore be roughly estimated at 50*l.* and 100*l.* respectively. It may be argued that these calculations are excessive; but it must in any case be admitted that while the uncultivated portion of the cultivable area of Great Britain now constitutes an almost inappreciable fraction of the whole, the case is more than reversed as regards its honey-bearing area. So far from being overstocked with bees, it is a fact even that, in most of the best districts Britain, especially in June and July, and where there is heather in August, has pasturage for an hundredfold more.

Why, then, is apiculture so unimportant and unsuccessful an industry? No doubt something is attributable to uncertainty of climate. In some years apiculture the most skilful may yield scarce any profits, or may even result in loss. Rainy weather, or the prevalence of cold easterly winds during the three or four weeks of the clover-blooming may altogether ruin the harvest, and although a specially favourable heather season may amply atone for this, if the swarms have been kept strong, it sometimes happens that both clover and heather harvests are comparative failures. Undoubtedly the great success with which apiculture is prosecuted in Australia and the United States is partly due to climatic conditions. Still, seasons do occur with us which are equal to the best Australian and American; and if our average is not so

high, the effect is probably counterbalanced by the better price which British honey commands in the market. At any rate it has been sufficiently demonstrated that apiculture may here be made thoroughly remunerative. As a matter of fact it has often been found profitable under the old 'do or die'—or rather 'do *and* die'—system. Formerly most British bee-keepers were content—as many are still content—with housing their bees in straw skeps much too small, or in plain wooden boxes, and allowing them to carry on the struggle for existence in their own fashion, with almost no artificial help or guidance. Did the hives prosper and multiply, the bees of a certain number were consigned to the brimstone pit in order that their honey might be taken. Occasionally honey might be got from supers, but the bulk of it could only be had by wholesale slaughter.

Bee-keepers of this stamp generally know nothing, or almost nothing, of the special habits and peculiarities of their charges, of the diseases to which they are liable, of the enemies which work them woe, or any other causes of calamity. If a strong hive suddenly shows signs that evil of some kind has befallen it, and gradually dwindles to extinction, or if a hive which was strong in autumn is found to have perished during winter, the circumstance is simply regarded as a mysterious visitation against which precaution is impossible. This strange ignorance and this inability, or unwillingness, to master the elementary principles of bee-keeping, are no doubt largely due to terror. No one can be a successful bee-keeper who does not conquer that terror; who is unable to handle and examine his swarms as familiarly and fearlessly as the stock-breeder handles and examines his flocks and herds. As a matter of fact the manifestation of fear is the most frequent cause of attack. Bees are quick to detect nervousness either in our kind or in theirs; but if quietly and confidently approached and handled will permit great liberties to be taken with their combs without the smallest signs of irritation. Moreover, once conquer terror, and it becomes possible with the use of a fumigator to make your swarms absolutely submissive to any kind of quiet manipulation. There is therefore no earthly reason why the bee-keeper should not be able to know his hives as the shepherd knows his lambs. Manipulation is the *pons asinorum* of the mystery; and once it is mastered, the same practical shrewdness which makes a farmer successful will make a bee-keeper successful.

Already apiculture has made such strides in Britain as seem to indicate that it has a great future. Is it too much to suggest that in some districts of the Highlands crofters might earn much more by bee-keeping than they will ever make by the decisions of any number of Land Commissions? or that farmers—especially in those districts which border on heather—have in their hives a source of income which would make the land as profitable both to themselves and the landlord as ever it was of old? It seems certain, at any rate, that if the depressed agriculturist must have a panacea, he will find honey-gathering to be at least as good a general specific as the cultivation of strawberries or the manufacture of jam. Apiculture, indeed, is capable of more general application, and can be carried on with less expenditure of capital or labour, while the result is vastly superior.—*The Scots Observer.*

Commercial Uses of Propolis.—'Dissolved in alcohol and filtered, it is used as a varnish, and gives a polish to wood, and a golden colour to tin. A preparation made with finely-ground propolis, gum arabic, incense, storax, benzoin, sugar, nitre, and charcoal, in quantities varied at will, is moulded into fumigating cones, for perfuming rooms or halls.'—Dubini.

As the bee culls honey from every flower, so good may be derived from every occurrence of life, if we with diligence seek for the lessons conveyed.

BEE-KEEPERS' VOCABULARY;

Or, Glossary of Technical and Scientific Words used in Works upon Bee-keeping.

Encasing a queen.—Queen encasement. See *Balling a queen.*

Endemic. *a.* (*Gr. en*, in or among, *demos*, the people.)—Peculiar to a given locality.

Endo-skeleton. *n.* (*Gr. endon*, within, and *skeletos*, dried.)—The inner frame-work, as that in the head of a bee, consisting of pillars which support and give strength to the external skeleton.

Endosmose. *n.* (*Gr. endon*, within, and *ōsmos*, impulsion, fr. *ōtheo*, I push.)—An inward current established between fluids of different densities when separated by animal or vegetable membranes; absorption (*q. v.*)

Enemies. *n. pl.* (fr. *L. inimicus.*)—Foes or adversaries of bees. Mice, birds, wax-moths, and parasites, are called enemies because they either live on bees or their produce.

Engraft or ingraft. *v. t.* (A corruption of the word *ingraff.*)—To propagate by incision; to set or fix deep and firm; to place a queen-cell in a comb taken from another comb in such a manner that the bees fasten it securely.

Entrails. *n. pl.* (*Fr. entrailles; Gr. entera*, intestines, fr. *entos*, within.)—The internal parts of animal bodies; the bowels; intestines.

Entrance. *n.* (*L. intrans, intro*, I enter.)—The door or passage through which the bees enter and leave the hive; flight-hole; fly-hole (Arch.); tee holes (Prov.); gates (Prov. & Arch.)

Entrance-blocks.—Pieces of wood by which the size and position of the entrance can be regulated.

Entrance-guard.—A perforated zinc device, usually placed in front of entrance, by means of which the queen and drones are prevented from entering or leaving the hive, while the workers are able to pass freely.

Entrance-slides.—Pieces of wood sliding in grooves, and used for the same purpose as *entrance-blocks* (*q. v.*)

Epicranium. *n.* (*Gr. epi*, upon, and *kranion*, the skull.)—That part of the head bounded posteriorly by the occiput, on the sides by the eyes, and in front by the clypeus.

Epidemic. *a.* (*Gr. epidemios, epi*, upon, *dēmos*, people.)—Attacking many at the same time or in the same season, as for instance, a disease like foul brood; general; generally prevailing.

Epidermis. *n.* (*Gr. epi*, upon, *derma*, the skin.) The outer skin; the cuticle; thin membrane covering the skin.

Epigastric. *a.* (*Gr. epi*, upon, and *gaster*, belly.)—Pertaining to upper part of abdomen.

Epiopticon. *n.* (*Gr. epi*, and *optikos*, relating to sight.)—That portion of the compound eye forming a ganglionic swelling situated beneath the basilar membrane and periopticon, with which it is connected by means of decussating nerve fibrils.

Epipharynx. *n.* (*Gr. epi*, and *pharynx*, gullet.)—Gum flap, or that part of the mouth situated beneath the upper lip, covered with a delicate membrane. According to Wolff its function is, in conjunction with the maxillæ and labial palpi, to form an air-tight tube by means of which the bee is able to suck up liquids.

Epithelium. *n.* (*Gr. epi*, and *thēlē*, a nipple.)—The cuticle or those parts not covered with true skin.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements.)*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

OUR HONEY IMPORTS.

The total value of honey imported into the United Kingdom during the month of November, 1889, amounted to 1761*l.*—*From a return furnished by* E. H. BELLAIRS, *Wingfield, Christchurch.*

BEES DYING.

[2402.] I should be much obliged if you could help me to make out whether there is anything serious the matter with my bees. They have been confined to the hives for a week and a-half by cold weather, but as there was some warm sunshine to-day, I went to look at them, and found one colony very busy hauling out corpses at a great rate. Surely it cannot be the natural dying off of old bees that causes such losses. And I cannot think that they are dying of hunger so soon after the autumn feeding. I do not believe they have any disease; they worked well all summer, and I fed them up with medicated syrup in September. Two things suggest themselves to me. The season has been so mild that they kept breeding a long time. I noticed pollen being carried in quite a few weeks ago. Can this have worn them out too much? Secondly, in fear of such a result, I did, in November, make some candy, and put two or three pounds on to the top of each stock. I am not sure that I succeeded very well in making it. The sugar was the best, and the proportions right, but it seemed determined not to melt, for the grain never disappeared, and thinking that the sugar, therefore, was not dissolved, I kept boiling it a long time. I am pretty sure it was not burned, for I kept it well stirred, but it set, I fear, too hard. I looked under the lump to-day, and found it had hardly been touched. Several of the other hives had some bees lying about near the entrance, but in the case of one hive the funerals were very numerous, and in active progress when I went to inspect. I am very anxious about this stock, as it has a new Carniolan queen, which I introduced in September, and should be grateful if you could give me a hint as to whether anything is wrong, and what ought to be done. I enclose some of the dead bees, in case an inspection of them might help you to decide the cause of their death. Please say what breed you would call them.—RAW HAND.

[We do not think there is anything serious the matter, as it frequently happens when a colony has been very active late in the season and sudden cold puts a stop to this activity, the mortality is larger than usual. All the weak and old bees die off and drop to the floor-board, to be removed on the re-appearance of fine weather. Your giving candy ought not to hurt them, unless you disturbed the bees too much. If you fed them abundantly with syrup in September, they should not require feeding so soon. There must have been something wrong in the sugar or the proportions used, for the grain should disappear before the setting takes place. You should have added more water until all the sugar had dissolved, and then boiled to proper consistency. We should recommend you not to disturb the bees again, if you are sure they have plenty of stores to last till spring. If not, push in a cake or two of candy, with as little disturbance as possible. The bees sent are the common black.—ED.

DO CASTS BUILD DRONE OR WORKER COMB FIRST?

[2403.] Mr. M. Service [2401] entirely misses the sense of my, in fact, every bee-keeper's, knowledge upon the above point. I have never said that casts *always* commence building drone comb. He must remember that bees do few things invariably. My observations lead me to positively assert that bees accompanied by a virgin queen placed in a hive minus any artificial aid—to wit, foundation—always commence to build drone comb, and continue so to do until queen is fertilised. Thus, as casts are more frequently so accompanied than any other swarm, we usually see drone commenced in their hive. This comb being normally built close to hive side, the bees must, if so built, commence from side. Mr. S. quotes three instances of casts building worker comb placed in two Stewartons and one frame hive, presumably with fonndation, as an experienced bee-keeper would never even think of placing a swarm in a frame or Stewarton hive without.

If Mr. S. will examine a few dozen skeps where casts have been put in them without any artificial or natural comb, he will most certainly find ten out of twelve have commenced with drone conb, and this at the side of the hive.

I do not wish to dogmatise, but the above facts are so well-known to experienced bee-keepers that it would be almost presumptive to place any discredit upon them.—W. B. WEBSTER.

RUN HONEY.

[2404.] I am another that would like to see a national competition for run honey, but I think Christmas too late in the season for it to be held. Would some time in August or September not be better? then there would be less danger of the honey becoming granulated.

I would also suggest that each of the prize-winners have one of their jars returned. Could the B.B.K.A. not make arrangements to supply the jars—say four jars sent in a box for so much, including entry fee? I mention four, but one might get broken, then all exhibits would be placed on the same footing, and the Association might make a little out of the transaction. The box would have to be strong enough to carry the jars safely when filled with honey, and they could be sent through the parcel post, and the carriage would come in the same from all parts of Great Britain.

I always think that flavour, consistency, and pureness or clearest of wax or dust are enough points to judge a sample of run honey by. Colour cannot be looked at as an important point.—W. HOGG, *Castle Douglas.*

SHALLOW FRAMES.

[2405.] During the last two or three seasons I have used frames of standard length, but only 5½ inches deep out to out, so that my boxes are just a little under 6 inches deep. There are advantages, such as placing a box of them under a full stock, thus giving room to prevent swarming. The bees put a lot of pollen in these combs, which answer very well to cut out and tie in standard frames at the end of the season for driven bees. I have used about 200 of these frames the past season, and intend to make a few more, but standard frames are the ones to yield the honey when placed a good distance

apart; then, if the combs are wanted, there they are the right size without any alteration required. Where I had the small boxes tiered up they were joined together, making more of a job to get them out, whereas if they had been only one depth, and that standard size, that would be avoided. In a moderate honey flow they do very well, but when a good flow comes on, as during the past season, the full standard size gave the most honey with least labour. If any one thinks about making some, and has not yet, I should say stick to the standard entirely.—JOHN WALTON.

ASSOCIATION FOR WESTMORELAND.

[2406.] In recent numbers of the *B.B.J.* I have seen that Cumberland is beginning to take a greater interest in bee-keeping, and even hints at forming an Association. I do not see at all why the sister county should be behindhand, and would be obliged if any Westmorian interested in apiculture, and desirous of forming an Association, would say so in your columns. Surely union is strength in bee-keeping as in other things.—BIENE.

COUNTY ASSOCIATIONS.

[2407.] I was sorry to see in *B. B. J.* (No. 2388) that our honoured Editor misunderstood me respecting what I wrote about Associations. There is no one who likes to belong to societies more than myself; but I did think it very strange that I did not get an annual report even when another subscription was due. I am only a working gardener, and did think it an honour at first to be able to join such an Association, and would add in the words of the poet:—

'Ignore all selfish ends
And interest of thine own,
He lives for little good.'

—WILLIAM PEARCE, *December 7th*, 1889.

[We sympathise with our correspondent. We think he was entitled to a report. We are not surprised at County Societies losing subscribers if they do not take the trouble to inform them about what they are doing. We hope that this Association to which our correspondent subscribed will be more prompt in future in sending reports. They certainly should be sent out before subscriptions for the current year are asked for, and this the subscribers are certainly entitled to.—Ed.]

ADVICE TO A BEGINNER.

[2408]. The conditions of success in bee-keeping. What are they? I have not had any extraordinary success myself, but endeavour to satisfy my conscience that, were the conditions more favourable, I would do very well. I believe, however, that I can see partly wherein success lies, and knowing what mistakes I have committed in getting thus far, I wish to indicate what experience has taught me to be about the correct course for a beginner to take. To him I would say, 'Don't locate your apiary on a mountain-top. You may locate on a mountain side (southern or western aspect) provided there be bee pasturage thereon, and provided that you shelter your hives from the wind. If you don't see to the latter matter, you may have your hives blown over, or the lesser evil of having the covers blown off. The latter misfortune has been my lot on more than one occasion: a stock, in one instance, being exposed to the wind and rain for at least twenty-four hours. The poor bees had but the faintest flickering of life and their owner but the faintest flickering of hope of resuscitating them. A warm quilt did it, though.

The best hive? Well, for the advanced bee-keeper, I don't pretend to know which is best, if any is. The competent man will secure good results from a hive of any pattern. But to the beginner, I unhesitatingly advise the long, parallel pattern, double-walled (with all due respect to the opinion of Mr. A. J. H. Wood), and so made as to be capable of taking a super of the same dimensions as the body box. The frames to be broad-shouldered or metal-ended. This is unorthodox, I know; but it is best for you, Mr. Beginner, at any rate. The best frame, in my estimation, is Abbott's, because its top bar is not split. For quilt use enamel cloth with extra covering above. Be careful that there be no air-passages between the shoulders.

Treatment.—Manipulate as seldom as you can, as speedily as you can, and as quietly as you can. Put up your stocks for winter, in August, on seven or eight well-filled frames. Don't have anything to do with autumn stimulative feeding. I have found it a most delusive proceeding. Read the editorial on this matter in a recent issue of the *Journal*. Don't disturb during the winter. Take a look at them on a fine day in early spring to satisfy yourself as to stores and the presence of a queen. If all right, leave them undisturbed until May, when extra room should be given as required—not before it is required, observe. Leave the matter of re-queening to the bees. If you take it in hand you are more than likely to make a muddle of it. A certain fellow I wot of had reason to repent his early attempts in interfering with the bees' laws of succession. Use carbolised cloth in manipulating.—EAST GLAMORGAN.

NOTICES TO CORRESPONDENTS & INQUIRERS

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

H. MACGREGOR.—*Melilot.*—The plant you mention is most likely the yellow melilot (*Melilotus leucantha.*) It is a biennial. If you sent us a specimen bloom we could tell you for certain. Please address *British Bee Journal*, for Messrs. Strangeways & Sons, Tower Street, Cambridge Circus, London, as your post-card, owing to a wrong direction, was not received until to-day, December 16th.

H. L. H.—Many thanks; we are making enquiries into the matter,

J. T. W.—*Honey damaged in Transit.*—To the question which you put as follows:—'A, who has honey to sell 'lives seven miles from a station, offers such honey at 'a price free on rail. B buys same. To reach B, the 'honey travels over two lines of railway, and arrives 'in a damaged condition, and B wishes to know from 'whom to recover.' We consider the railway company who delivered the honey to B is responsible, even although he has signed a receipt and paid the cost of carriage. The onus lays with the last carrier to prove that the goods when received by him were damaged, otherwise he is liable for *all* damage which the consignee finds to have arisen when he opens the parcel. This cannot be done while the carmen waits.

DRONEY.—Your echo is very interesting, and should you succeed in carrying your stocks safely through till next May you will indeed have done well for a beginner.

ST. IVIAN.—*Rearranging Apiary.*—You can do this any time during the winter, provided the bees have not been on the wing for, say, two or three weeks. Be very gentle to avoid jarring.

The British Bee-keepers' Association.

IN accordance with the intimation given in the last Report of the Association, a fund was opened early in the present year to enable the Committee to meet the necessary expenses attending the Exhibition held at Windsor in June last. At a recent meeting of the Committee it was resolved that, in consequence of the exceptionally heavy work and expense which the Association had been called upon to undertake during the present year, this fund should be extended for general expenses. During the current year it has been found desirable—

(1) To oppose the several Railway Companies in their proposals to obtain powers for charging excessive rates for the carriage of honey and bee-keeping appliances under the Railway and Canal Traffic Act: a still further outlay is needed under this head.

(2) To amend the rules and regulations for conducting examinations.

(3) To hold an Exhibition of Honey, &c., at Horsham, in connexion with the Bath and West of England Agricultural Society, &c.

The Committee are unable to meet their current accounts as readily as they could wish, whilst additional work, such as the printing and circulation of useful pamphlets, &c., cannot be undertaken through lack of funds.

£45 of this fund has been absorbed in the expenses attending the Windsor Exhibition. Several subscriptions have since been received, making the total amount nearly £60. This sum is, however, far short of the Association's needs; at least £100 ought to be raised. The Committee urgently appeal for support in their work. Subscriptions should be forwarded to the Secretary, Mr. John Huckle, Kings Langley, Herts.

THOS. W. COWAN, *Chairman.*

November, 1889.

SUBSCRIBERS:

	£	s.	d.
Acton, Mrs.	0	5	0
'Amateur Expert'	0	10	0
Bartrum, Rev. Dr.	0	10	6
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Bligh, Hon. and Rev. H.	1	1	0
Brett, Mr. R. T.	0	1	1
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Carr, Mr. W. B.	1	1	0
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Morrison, Mrs.	5	0	0
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Proprietor *British Bee Journal*	3	3	0
Raynor, Rev. Geo. (late)	1	1	0
Reed, Mr. F.	0	5	0
Robinson, Mr. A. W.	0	5	0
Rohde, Mr. R. T.	1	0	0
Rohde, Mr. H.	1	0	0
Ross, Mr. J.	0	10	0
Rusbridge, Mr. A.	0	5	0
Scott, Rev. F. T.	2	2	0
Sells & Son, Messrs.	0	5	0
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Wray, Dr.	0	5	0
Additional Subscription:			
Campbell, Captain	1	1	0
Dismoor, J.	1	1	0
McNally, J. D.	0	5	0
McNally, W.	0	5	0

SPECIAL FUND in support of the Mansion House United Association on Railway Rates:

	£	s.	d.
Lancashire and Cheshire Association	1	1	0
Middlesex Association	1	1	0
Kent Association	1	1	0
Surrey Association	1	1	0
Notts Associations	0	10	6

THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.

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Editorial, Notices, &c.

THE PURSUIT OF BEE-KEEPING.

Once more we have arrived at the last issue for the year, thus bringing to a close the Seventeenth Volume of the *B. B. J.* Despite a certain amount of empiricism and chicanery, which will, efforts to the contrary notwithstanding, intrude itself upon every pursuit, we feel certain that those who were in the thick of the fight seventeen years ago, and are still with us, can look back with honest pride on the magnificent progress that has been made in our fascinating pursuit. Consequent upon much patient and careful investigation there is now no difficulty in procuring thoroughly reliable information, not only by the beginner, but also by the advanced scientist. The various forms of disease have been so carefully diagnosed, and various cures for the same prescribed, that each individual bee-keeper may, if he will only read, consider, and give time and attention to it, undertake to clear most of his stocks of disease, should he be so unfortunate as to find they have contracted it. We would gladly welcome some comprehensive scheme for thoroughly eradicating foul brood from any apiary where the owner may neglect to deal with it. In Germany, under the recent law, which we reproduced in our columns a few weeks ago, foul brood is especially provided for. Could a similar provision become law in this country, it would be of great benefit to the whole of the bee-keeping fraternity. It is no uncommon occurrence for us to receive a letter detailing how our correspondent has, after much trouble and care, cleared his apiary of foul brood, and at the same time expressing strong fears that he will be unable to keep it healthy, as he has a near neighbour whose bees are diseased, and who will not trouble to do anything towards removing the disease, nor will he allow any one to do it for him. Truly a dog-in-the-manger policy, and one that it should be perfectly legal to deal with in a summary manner. To the man who will carry this through, a statue shall be decreed.

There are many who look upon bee-keeping as, to say the least, a rather harmless form of insanity. In effect they say, 'Bees—yes, old man, we have heard of them before; have you found out yet whether yours have any stings?' Happily this *nonchalant* treatment of the enthusiastic bee-keeper is dying out, and it is high time it was. It should be prominently borne in mind that we aim at the tangible increase of our food resources, and that without in the least monopolising the acreage at present under cultivation.

We are afraid this view of the subject is seldom taken into account. Whatever other kind of food crop is grown, one of the first considerations is the providing of good and sufficient forage. Considering the limited dimensions of our right and tight little island, this can only, as a rule, be done by dispossessing some other food producer, possibly of a less productive character, still nevertheless a food producer. With bees this is entirely obviated. So far as science can prove, nothing that the bee takes from the plant, in any way reduces its value; but science *does* prove that the presence of bees so far increases the chances of a harvest as to make it a certainty in a favourable season. Further, the exquisite nectar distilled by most plants exists for a special purpose, viz., as a means of keeping the seed ovaries from drying up before the seed is set, and also as a natural decoy to the bee, so that, happily, by the aid of the bee, the plant may be enabled to reproduce its kind in obedience to the fiat of the Creator.

This being so, it behoves us to seize upon this opportunity to secure our honey crop, because a plant which is continually visited by bees goes on secreting more honey to keep the ovaries covered, and thus produces a far larger quantity than the unvisited plant. The latter has merely to make good the loss by evaporation, till, the particular flower becoming fertilised, the secretion of nectar not only ceases, but that already secreted is absorbed, having done its duty. We have no hesitation in saying that every year many tons of valuable food are lost to the community simply from the scarcity of our little friends. Many take exception to bee-keeping because it is not profitable. Well, we cannot refrain from retorting that if grumblers are to be implicitly believed, there is no kind of business or undertaking profitable, except—the one they happen not to be engaged in.

Away with such petty grumbling, *l. s. d.* is a necessary equation in the daily affairs of men, but it is not, and never will be, an omnipotent factor. We are still of opinion that wisely managed bees will, in average seasons, far more than pay their way; but, even were that not so, would it be *no*

profit to have saved from absolute loss a valuable food product, or to have attained to a more intimate and exact knowledge of the wonders of Creation so beautifully exemplified, and withal so easily observed, in the frame-hive of the present day. Truly we live in the hey-day of golden opportunities, and sordid is the mind that loses sight of the intellectual side of life, eclipsed by the current coin of the realm. It is much like an eclipse of the sun, where our moon, being a burnt-out cinder of relatively small dimensions, blots out for the time being the glorious, life-giving, refulgent orb of day; but even as that eclipse cannot be prolonged beyond a very short space of time, so we feel confident that the rising intelligence of the nation will not fail to grasp the nobler side of life, and thus appraise things at their proper value.

NOTICE TO OUR READERS.

In these days of amalgamation and the working of big concerns in every branch of industry, when several firms join to carry on a large business, advantageous both to themselves and the public, we should be behind the times did we not endeavour to extend our usefulness in bee-keeping in the same way. We have every reason to look back with satisfaction to the progress made by the *British Bee Journal* during its career first as a monthly, then as a fortnightly, and lastly as a weekly. The circulation has gradually and steadily increased, but it was felt that at the price of twopence a-week it was not within the reach of all. We had long hoped that our dream of making the *B.B.J.* a penny a-week might be realised, and we intended to reduce the price in 1890, when the issuing of a new volume would have enabled us to make the necessary alterations consistent with the reduction in price.

Feeling, however, the immediate want of a cheap weekly bee paper, we decided to give our readers the benefit by reducing the price in July last. With this number we end Vol. XVII., which will also be the last of the series, and with the new year we shall commence a new series.

We have to thank our numerous subscribers for their kind words of appreciation of the manner of conducting the *Journal* since it has been in our hands, and for the kind help we have received from our friends and contributors in making it interesting and instructive, and we hope they will continue their assistance in the future. The circulation has increased considerably, and that, notwithstanding the bad bee season of last year. We would ask all our friends to use their best endeavours to still further extend its circulation, so that we may be in a position to offer them the best as well as the cheapest bee paper published anywhere.

The *Bee-Keepers' Adviser*, which was issued as a monthly in connection with the *B.B.J.*, has gradually grown, and has also increased its circulation beyond our expectations, but after the January number an alteration will be made which we hope will meet with the approval of bee-keepers generally. The esteem we have for Mr. W. Broughton Carr, who has so ably edited the *Record*, and the knowledge we have of him as a practical bee-keeper, has led us to make arrangements with him which will enable us to amalgamate the *Bee-Keepers' Adviser* and the *Record*, under the title of *The Bee-Keepers' Record and Adviser*. Mr. W. B. Carr will join us as editor of both papers, but the weekly will continue to be under our especial care and management, while Mr. Carr will conduct the monthly, and both will be published, as hitherto, solely in the interest of bee-keeping, with, we hope, an advantage to all concerned.

The size adopted for the weekly and monthly will be one intermediate between the two (that is, the present *B. B. J.* and *Record*), and they will be printed on paper specially prepared to receive the beautiful photo-engravings with which our readers are already familiar, and which for faithfulness of delineation leave nothing to be desired. No pains or expense will be spared to make the two papers the best of their kind, and worthy of the support of all bee-keepers in the United Kingdom.

We trust this arrangement will be as pleasing to our readers as it is gratifying to ourselves, and that this union of forces will tend to further stimulate bee-keeping.

Letters for the *British Bee Journal* should be addressed as heretofore, and those relating to the monthly to Mr. W. Broughton Carr, Higher Bebington, Cheshire.

All letters relating to subscriptions and advertisements for both Journals should be addressed to Mr. J. Huckle, Kings Langley, Herts; our London publishers being Messrs. Simpkins, Marshall, Hamilton, Kent, & Co.

We take this opportunity of wishing all our readers a merry Christmas and a happy and prosperous New Year.

REPORT FROM MAIDSTONE.

I am very late in reporting my proceedings with the bees this year. But I have not had time to do so before, and now I have the opportunity, I am sorry to say that I cannot say that this has been so good a year for honey as I thought (in June) it would be. My bees (fifteen stocks) passed through the winter in splendid condition, but about the middle of April I found two queens not up to the mark, so they were destroyed and the bees united to others, leaving me thirteen stocks to work the season out. They have done remarkably well up to the end of June. At that time I had many hives with as many as forty-two standard frames in them, and completely crowded with bees, others had as many as three to four crates of sections numbering from twenty-one to twenty-four one-pound sections each crate. At that time I took away a large number of sections and combs for extracting, but I cannot now say what amount of either. It then looked as though this year would be a wonderfully good year for honey, but just at this time the weather changed, and we got lots of wet and cloudy days, when, of course, but very little honey was to be got, and this continued up to nearly the end of August. And as my hives were so crowded with bees, they could not get enough to live upon, so they had not so much honey at the end of August as I left them at the end of June. We got about two weeks of beautiful sunny weather in September. At this time there was but very little for the bees to get besides what they could get from the borage and *Nepeta Mussini*. Had there been

acres instead of a few poles, there would have been some grand work done in the two weeks' fine weather. As it was, the hives got much heavier, so in the end I have no reason to complain, having taken in all (sections and extracted) 1044 lbs., or an average of 80 lbs. per hive and 4 lbs. to spare. I have left abundance in the hives, with combs for fifteen skeps of driven bees, and have stored twenty combs about two-thirds full of sealed honey, in case they should be wanted in the spring. Still, I do not think they will be wanted then. It was several days in November before I could get time to take all the combs I wanted to, and finish packing up for the winter. At this time the honey did not leave the combs very readily in the extractor, so this was one reason why I stored them.

With your permission, I will just say a word or two how my experience has been with sections. I never had any four-bee-way sections until this year, although I had made several crates to receive them, so as to give the bees room to pass all around them: so I sent to a dealer and got some, not thinking at the time about dividers for them: and when they came I was sadly in want of them, so I put whole sheets of foundation in some, half-sheets in others, and starters in others, and put them on the hives without dividers: and when they were filled I could tell each one whether it had a full sheet, half-sheet, or starter only, as where the whole sheet was, all was worker-size cells, and half-sheets were half-worker size and half-drone size, and starters showed nearly all drone size. They were all very nicely filled out and well attached to the wood, and with but very few passages at corners, &c., but most of them were rather unsightly, being more or less bulgy and very heavy, weighing from seventeen to nineteen ounces, so most of them found their way into the extractor. I think I shall never try any more without dividers. The two-way were also very well filled, and of a very delicate colour and very transparent. These being worked with dividers, were very flat on the surface, and looked very attractive. But in this part of the country people look upon it as too much of a luxury. Still, I will not complain, as I have sold a very fair portion, and of course hope to get rid of all before another season's produce comes in, less what we require for our own consumption, which is something like one pound per day, as it is used on the breakfast and tea-table, and in many kinds of pastry, &c.; and when the weather is hot I think a spoonful in a glass of cold water makes an excellent drink, and I really do not think you would find a more healthy family than ours in the county, and I quite believe that this free use of honey has something to do with this great blessing. As to the price, I have not sold any sections less than 10*s.* 6*d.* per dozen, and not many less than 11*s.* per dozen wholesale, and 1*s.* each retail one-pound glass jars (screw cap), the same price as sections, and 10*d.* per lb. when customers provide their own vessels. I have also got 11 lbs. of very nice wax from the cappings. So I think I have no room to be dissatisfied, as I know of but very few who have taken half the amount per hive as the above. Wasps have not been very troublesome here this year, but the tom-tits are now more troublesome than anything I have had all this year. We catch lots of them with traps, and the more we catch the more there appear to be; and there is no mistake about them catching and eating the bees. We have watched and witnessed them fly into the trees near the hives, then drop down upon the flight-board and tap with their beaks and wait until a bee comes out, and he is caught up in a moment and carried into a tree and laid upon a branch with the bird's beak, and before he looses it with his beak he places his foot upon it; so he holds it while he pecks it to pieces and eats what he likes and lets the other parts fall to the ground. Then, if he is not disturbed, he again drops down upon the flight-board and goes through the same process again, and so continues until he is disturbed or gets all he wants for the time being. I may say that I have made very free use with camphor and carbolic acid this year, both in and out of hives, and I think that has been the means of keeping clear of that troublesome pest, foul brood, although it has been and still is very bad about here, and is within twenty yards of my apiary, but I am glad to say that the person has consented for me to do as I like with them next Spring, so I hope to be able to get rid of that great danger so close to me, and that all persevering bee-keepers may do better next year than I have done this, is the desire of—C. H. W., *Aylesford, near Maidstone, Kent.*

BEE-KEEPING FOR COTTAGERS.

IX.

Wintering.

The necessity for completing syrup-feeding before the commencement of the cold weather is not generally realised, and from many communications I have had with cottagers and amateurs I fear carelessness in this matter is generally due to ignorance of what may be the result of the presence of a large amount of unsealed syrup in a weak or even moderately strong stock.

To properly understand this matter we cannot do better than briefly consider the gathering, ripening, and final sealing of the honey by the bees during the summer. The honey when brought into the hive by the bees is thin (watery), and before it is sealed over for winter use the excess of moisture must be got rid of by evaporation.

Most bee-keepers have, in the evening of a fine summer's day, during which the bees have been working well, had occasion to examine a stock. At all times frames of comb should, when taken from the hive for examination, be kept in a perpendicular (upright) position: and if on this occasion they are not so held, the honey falls out of the cells in a miniature shower, reminding one of the occasional drops of rain from a passing cloud on a warm summer's day. Skeppists may also have noticed that if for any reason they invert a stock in a skep under similar conditions the thin honey runs out of the cells and down to the crown of the hive; and, when the hive is replaced on the floor-board, down the sides on to the floor-board.

Further examination of a bar-frame hive would also reveal the fact that honey is stored in the brood-chamber in every available cell, though on the following morning most of them would be again empty.

When the bees bring the honey from the fields they do not store in and fill the cells above the brood-chamber, but use all empty cells in order that a greater surface may be exposed to the heat generated by the bees in the hive.

The natural heat of the stock having converted the excess of moisture into vapour, it is driven out of the hive by the bees, and the honey, then much thicker, is carried upwards either to the upper parts of the combs or into the super above the brood-chamber, and here again it is exposed to heat and gradually thickened until it is ripe, and then the cells are sealed by the bees with an air-tight capping which preserves the honey for future use.

This explanation of the process of ripening honey, will I have no doubt, enable bee-keepers to see how necessary it is that the syrup is given at such time and of such consistency (thickness) as will enable the bees to get it sealed before the commencement of cold weather, when, if there should be liquid food in the hive and a weak stock, fermentation would take place and the food made injurious to the bees.

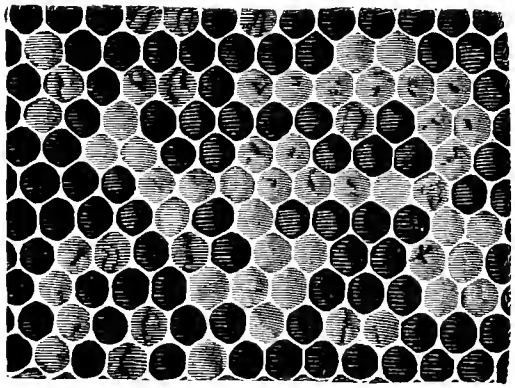
Diseases.

Bees, like other members of the animal world, are subject to diseases, but there are only two with which the cottager is likely to become acquainted: they are *foul brood* and *dysentery*.

Foul brood.—This, though the worst of all bee diseases, is not general, and in some parts of the country has never been known. Hunts and Cambs are particularly favoured in this respect; but here, as in other parts, bee-keepers cannot be too careful in introducing fresh blood into their apiaries, and on no account should they have bees from *districts* where brood is known to exist.

Though many districts are entirely free, it is advisable that if by any means the pest should appear, the bee-keeper should be able to recognise and prevent it spreading.

This is a duty he owes to his neighbour as much as to himself. *Foul brood* or *Bacillus alvei*, as it has been named by Mr. Cheshire, is a disease attacking the brood; and instead of the grubs being of a pearly whiteness as when healthy, they assume a yellowish tint which changes to a dark coffee colour. The cappings of the cells also present a peculiar appearance; they are sunken,



and appear as though pricked in an irregular manner. The presence of the disease is also known, as it progresses, by a very offensive odour arising from the worst affected parts, which Mr. Cheshire likens to the smell of 'offensive glue, while it is not unlike that from guano.'

Various remedies might here be given; but instead, I strongly advise that, when *foul brood* is suspected, a piece of the affected comb should be packed in a small box and sent to the Editor, with a request that he shall say whether it is foul brood, and if so, what remedies should be adopted.

Dysentery.—This disease is more frequently met with, though it is more easily prevented and more easily cured than *foul brood*. It is recognised by the bees voiding their excrement on the combs and inside the hive, and is generally found when the bees are in a damp, badly-ventilated hive, and are compelled to partake of unsuitable or fermented food.

To prevent dysentery bees must have dry and well-ventilated hives—though packing must not be neglected—and there should be plenty of good sealed stores. In fact, where the directions for safe wintering are carried out dysentery is almost unknown.

Enemies of Bees.

These are usually considered to be *wax-moths*, *wasps*, *birds*, *spiders*, *toads*, and *mice*. From these enemies the bee-keeper may protect his bees by the exercise of a little common-sense.

The wax-moth is the most troublesome of all to the cottager. The moth, which is to be seen flying about the hives in the summer evenings, enters the hive whenever an opportunity occurs, and lays its eggs in any crevice it can find. From its eggs hatch grubs, which tunnel the comb, and quickly destroy a weak stock. The best remedy, therefore, is a strong stock.

To protect stocks from wasps, the bee-keeper should narrow the entrances of his hives when they are most troublesome; and in the early spring all wasps (those then seen are queens) should be killed.

Among birds the greatest enemies to bees I have found are the *blue-tit* and the *sparrow*. Up to the present time I have taken no steps to stop the depredations of birds, but I am afraid that, being a tolerably good shot, birds which can be classed as enemies to bees will soon be scarce in my apiary.

Stocks are protected from spiders by keeping the hives clear of webs; and from toads by keeping the stands and surroundings clear of weeds.

Mice are fond of the tops of skeps for their nests, and are also often found in the hives among the combs. Traps should prevent their visits.—C. N. White, *Somersham, Hunts.*

BEE-KEEPERS' VOCABULARY;

Or, Glossary of Technical and Scientific Words used in Works upon Bee-keeping.

Epizoon. *n., plur. epizoa.* (*Gr. epi*, and *zoon*, animal.)—Term applied to those parasitic animals which live upon the bodies of other animals, such as ticks, lice, &c.

Errant swarm. (*L. errans*, fr. *erro*, I err.)—Vagrant swarm; wandering or roving swarm.

Esophagus or Œsophagus. *n.* (*Gr. oisophagus*, fr. *oiso*, I shall carry, and root *phago*, I eat.)—Gullet; canal through which food is conveyed from mouth to stomach; part of the *alimentary canal* (*q. v.*)

Eucone. *a.* (*Gr. eu*, good, and *kōnos*, cone.)—One of the three types of compound eyes of insects; term applied by Grenacher to the compound eyes of hymenoptera because they are furnished with a true crystalline cone.

Evacuate. *v. t.* (*L. evacuo*; fr. *e*, from, and *vacuo* I empty.)—Empty; void; eject.

Evaporation. *n.* (fr. *L. evaporo, e*, from, and *vapor*, vapour.) Conversion of fluid into vapour that is dissipated.—By evaporation the water is driven off from the honey and it is thickened.

Eversion. *n.* (*L. eversio*, fr. *everto*, I turn upside down.)—Overthrowing; turning inside out; the protrusion of organs that are generally produced in a cavity.

Evolution. *n.* (*L. evolutio*, fr. *evolvo*, I roll out.)—The act of unfolding or unrolling; arising one out of the other; the theory of generation in which the germ is held to pre-exist in the parent, and its parts to be developed, but not actually formed by the procreative acts.

Excluder zinc.—Sheet of zinc with openings large enough to allow worker-bees to pass freely, while preventing queen and drones; adaptor zinc (*q. v.*)

Excrement. *n.* (*L. excrementum*, fr. *ex*, from, and *cretus*, separated.)—Matter discharged; alvine discharges; fæces.

Excrete. *v. t.* (*L. excretus.*)—To separate and throw off; to discharge; discharge through pores.

Excretion. *n.*—Discharge through pores; a substance ejected or thrown off.

Excursion. *n.* (*L. excursio*, a running out from.)—See *Bridal trip.*

Exhaust. *v. t.* (*L. ex*, out, and *haustus*, drained.)—Empty; draw out; wear out by fatigue or toil.

Exoskeleton. *n.* (*Gr. exo*, outward, and *skeletos*, dried.)—The skeleton or frame work of an insect; external.

Exosmose. *n.* (*Gr. ex* or *exo,* outwards, *ōsmos,* impulsion, fr. *ōtheo,* to push.)—The passage of gases, vapours, or liquids, through membranes of bodies from the interior to the exterior; the opposite of *endosmose* (*q. v.*)

Expansion. *n.* (*L. expansio.*)—The act of expanding or spreading out; the enlargement of surface or bulk.

Exsection. *n.* (*L. exsectio.*) See *Castration* and *Comb pruning.*

Extensor. *n.* (fr. *L. extendo,* I stretch out.)—Muscle that raises or extends.

Externo-median cell. (*L. externus,* external, *medius,* middle, *cella,* a cell.)—The first sub-costal cell; the cell on the wing situated between the first costal cell and the median cell.

Extractor. *n.* (fr. *L. extractus, ex,* out of, and *tractus,* drawn.)—Machine by which honey is thrown out of the cells by centrifugal force,—honey extractor. Appliance in which wax is melted by means of the heat of the sun's rays,—wax extractor.

Extracted honey.—Honey that has been obtained from the combs by means of the extractor. Sometimes improperly called *strained honey.*

Extracting house.—Building in which the operation of extracting honey is carried on.

Extravasation. *n.* (*L. extra,* outside, and *vas,* a vessel.)—The state of being forced, pushed, or let out of its containing vessels, as for example, that which takes place when the wings are formed in the chrysalis from vesicles pushed out from the epidermal layer.

Extrude. *v. t.* (*L. ex,* out of, *trudo,* I thrust.)—Thrust out; expel; press or force out.

BRITISH BEE-KEEPERS' ASSOCIATION.

Papers for nominating Members to serve on the Committee for the ensuing year may now be obtained upon application to the Secretary. Saturday, January 25th, is the last day for receiving such nominations.

The Annual General Meeting of the Members of the Association will be held on Tuesday, February 18th. Notices of motions must be received not later than Saturday, January 25th.

'RATIONAL BEE-KEEPING.'

The following remarks on the food of bees contain most important information, more especially to those who are desirous of stimulating their bees to early and late breeding:—

'The food of animals may in general be divided into two classes. The food-stuffs of the first class serve to maintain respiration and to generate heat, and have been called "means of respiration." They are composed of the elements, carbon, hydrogen, and oxygen, and such foods are starch, sugar, fat, alcohol, and all digestible substances which do not contain nitrogen. Foods that come under the second division serve to form flesh and blood, to build up and to more fully develope the body, and they have therefore been called flesh, or blood-forming, or plastic foods, of which albumen is the most important. These are distinguished from the former class by containing nitrogen in addition to carbon, hydrogen, and oxygen. Honey, being a non-nitrogenous food, serves to maintain the process of respiration and to generate heat; and bees are able to subsist on it alone while in a state of repose in autumn and winter, when no brood is reared, and all other occupations which waste the strength of the body are entirely discontinued. But as soon as the instinct of multiplying awakes in the hive in spring, or as early as in February, if not before, the necessity for another kind of food also becomes apparent. The bees do not only consume far more honey than hitherto, because a higher degree of heat has to be generated and to be maintained in the hive, but they also show a great desire for nitrogenous or albuminous food, and such a food is the pollen stored away in the cells, which is now eagerly consumed, even if partly covered with mould. When the days are warm the bees are also busy in gathering pollen. It is well known that when pollen is wanting, common flour, put into a comb and placed in a sunny and quiet spot, is eagerly loaded by bees on their hind-legs and carried into their hives as greyish little pellets, chiefly on account of the nitrogen it contains. But in order that bees may be able to prepare in their bodies from dry flour the nutritious milky food for the brood, they also require water, which they carry into the hive eagerly in spring, and even in summer, if the honey they gather does not already contain it in sufficient quantity. Water is quite indispensable to bees in preparing food for the brood. They can better do without pollen for a time; and it is certain that without a single cell of pollen a colony is able to live through the winter, and even to rear some brood before their first flight in spring. To explain this strange phenomenon it was hitherto supposed that bees are able to keep a certain quantity of nitrogenous food stored up in their stomachs for a considerable time, which supposition, however, is probably erroneous, for there can be no doubt that honey and pollen—the food of bees—are soon further digested, their nourishing constituents being conveyed to the blood in a short time. Bee-keepers in general had not previously formed a correct idea as to how the chyle is prepared in the body of the bee and conveyed into the cells.

'It was supposed that pollen and diluted honey were consumed by the bees which have the care of the brood, the nutritious part being extracted by them from the chyme and returned into the cell as chyle. This view, however, is contrary to experience; for if a nurse-bee be crushed, we always see honey appearing but never any brood food. The great nutritive property of chyle, which passes into the blood of the young bee entirely, without leaving any particular residue, is further evidence of its being secreted from the blood of the nurse-bee, in the same way as milk is secreted from the blood of mammals. Quite recently naturalists have also discovered the organs by which the secretion of chyle from the blood is effected; they open in the mouth of the bee and ramify in the head and the thorax. Professor von Siebold gave an interesting lecture on this subject, which was illustrated by drawings, at the annual meeting of bee-keepers held in Salzburg. It has certainly not yet been settled whether these organs only assist in the preparation of chyle, by causing a more complete assimilation of its component parts, or whether they produce the entire mass of the food for the brood; yet the latter is more probably the case, and those organs might very properly be called chyle-glands, or, more briefly, milk-glands (mesenteric glands). It is now easy to explain how bees are able for a time to breed, and consequently to prepare the chyle for the nourishment of the brood, without nitrogenous food. The elements in which the food is deficient are for a time supplied by the blood, yet exhaustion gradually ensues, the blood becomes thinner and poorer, and as experience teaches, bees which breed out of season die in large numbers—doubtless from exhaustion.—*American Bee Journal.*

THE INDEX TO VOL. XVII.

The Index to Vol. XVII. of the B. B. J. will shortly be published, price two pence, post free. Due notice of its issue will be given.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," c/o Messrs. *Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements.)*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

THE PAST SEASON.

[2409.] The past season of '89 has not been such as to recoup us in this district for '88, but, on the whole, I think it has been what may be termed an average one. There were heavy losses last winter, and some hives that got through were so weak that it took them all summer to get their strength up again. One person lost five out of fourteen, and during summer got nine swarms and a fair lot of honey. Others, perhaps, saved one or two out of five or six, and got two and three swarms from the saved stocks. Another lost forty-one, and had six left; another lost eleven, and had six left. This person got eight swarms and took six to the heather, but had a serious accident in bringing them home again. There were eight hives packed upon a flat cart (two of them belonging to a neighbour), with a good take of honey, when, in coming up a bank, some of the harness broke, which caused the cart to tip up, and the whole lot were tipped on to the road like a load of stones, and all smashed to pieces. Some of the hives were literally firewood—they could not possibly be put together again, the honey was all lost. The neighbour's, too, were entirely lost, bees, and honey, and combs being all crushed together, and the owner of the six lost very many of the bees. Fortunately there was no one much stung.—JOSHUA FENWICK.

REPORT FROM DURHAM.

[2410.] I cannot remember such heavy honey dews as we had here during the past season. The oaks and plane-trees were literally dripping with it. The honey-flow ceased in the first week of July, instead of continuing until the 20th. This was owing to the hay crops being cut so much earlier.

I commenced the season with seven stocks. No. 1 hive, nine frames, queen two years old, yielded $3\frac{1}{2}$ stones of section honey. No. 2, straw skep, only half full of comb to start the season, threw off two good swarms. No. 3, frame-hive, worked double, one hive above the other, got the top off full. These combs were five years old, and the honey I took from them was the finest flavoured I ever took from my bees. It also set like butter as soon as put into bottles. No. 4 being weak to commence with, an aged queen, which will have to go down in spring, nil. No. 5, $1\frac{1}{2}$ stone of section honey. The bees in this hive superseeded their old queen, and are now standing well. No. 6, queen two years old, forty-five 1-lb. sections and three frames. No. 7, queen one year old, but very weak in bees, yielded nil. Nos. 8 and 9, swarms. The whole have abundance of stores. I have only had to feed two stocks a little.—J. FENWICK.

RE CROWN-BOARDS, WINTER PASSAGES.

[2411.] I remember reading, a while ago, in the *Journal*, some articles on winter passages. I never cut winter passages, and I have never lost a colony through the bees being unable to get to their stores *for want of winter passages*. I always use crown-boards, raised about a quarter of an inch above the frames, and I use them winter and summer. To a nine-frame hive I use one board, with eight slits about 12 inches long and nearly $\frac{3}{8}$ inches wide. This I fasten to the hive with two or four screws. In summer I place my sections on to this board, and the bees come up through the slits into the sections, the same as coming up through between the top bars of frames, and when the sections are to be taken off, I can do so without disturbing the brood-nest, as is the case if the sections are placed upon the frames. In winter I just lay my quilts upon those boards and pack them up so. If my hive be a large one of—say, eleven or twelve frames or more, I then make two crown-boards, with perhaps twelve slits.—JOSHUA FENWICK.

BORGUE HONEY.

[2412.] I venture to quote a paragraph from Mr. W. McNally's article of Nov. 7th, p. 469, as follows:—'Last autumn feeling ran so high in this matter that the Castle Douglas Horticultural and Dairy Produce Show decided to offer valuable money prizes to settle this dispute, two classes being specially chosen as a test "open to the world," one being three 1-lb. jars, the other six 1-lb. sections of honey. Judges were selected from different parts of the kingdom, the committee being fortunate in securing the Editor of the *B.B.J.* as one of their number. The result was that Borgue honey did not figure in the prize list. Had they topped the poll on that occasion, they would certainly have had some grounds to claim a superiority for their honey; and as the matter at present now stands any "peculiar excellence" with them remains yet to be proved. Very few, if any, of the exhibitors on that occasion ever had the honour of competing with their Borgue friends before.'

To the above statement I answered, 'Borgue bee-keepers did not enter at Castle Douglas, and consequently "did not figure in the prize list,"' &c. (Nov. 21st, p. 488).

Mr. McNally replies (Dec. 5th, p. 503):—'When I penned my remarks *re* the prize essay on Borgue honey, I could not say *who* were the competitors at the above show, by referring to p. 409 of *Journal*. I simply state that "Borgue honey did not figure in the prize list," &c. Knowing also that the open classes at Castle Douglas Show were expressly got up for the purpose of testing this famous honey against all others, the bee-keeping fraternity were consequently more than interested in the competition. It was currently reported at the show that Borgue honey *actually* competed there, although brought clandestinely and exhibited by outsiders, not for the value of the prize money, but as a test. Since then, however, more convincing proof has come to light, as one correspondent writes me by postcard, dated 25th Nov., saying, "I beg to inform you that Borgue honey was exhibited at the Castle Douglas Show by a neutral party who bought the sample at Borgue Show this year, it having gained the prize there, but which did not 'get in' at Castle Douglas. The party who bought the honey and competed with it is himself the informer."'

I and all whom I have heard mention the subject considered Mr. McNally's statement to mean that Borgue honey competed at Castle Douglas Show and was beaten there. The rest of his argument goes to show that Borgue honey was there. The facts are now within reasonable compass, and are these:—

At Borgue Show, Class 139 was '4 lbs. dropped honey in two 2-lb. glass jars' (1st and 2nd prizes offered). Class 143 was 'Eight sections, each from 1 lb. to 2 lbs. weight' (1st and 2nd prizes offered).

At Castle Douglas Show (classes open to all the world) Class 120 was 'Three 1-lb. jars of run or extracted honey—jars to be Breffitt's pattern of screw tops.' Class 12; was 'Six 1-lb. sections of honeycomb, size $4\frac{1}{4} \times 4\frac{1}{4} \times 2$ to be shown in tin section-holders, blue or slate colour.'

These two classes were the only ones in common at the two shows.

Now, one of the 2-lb. first prize jars and one of the 2-lb. second prize jars at Borgue were got by Archibald McNaught, Greenock; the other 2-lb. first prize jar was got by Dr. Shand, Edinburgh, and the other 2-lb. second prize jar by Mrs. Sproat, Kirkcudbright, none of whom entered or exhibited at Castle Douglas Show. The prize sections at Borgue Show were $7 \times 5 \times 2$ inches, and being 2 lbs. in weight, do not fit the Castle Douglas specifications either as to size or weight, and I have before me the names and addresses of those who got them. It will thus be seen that Mr. McNally's informer is wrong, and all the arguments based on the alleged facts necessarily fail.—JOHN DUNLOP, *Borgue Academy, Kirkcudbright, Dec. 16th.*

[When we were visiting Mr. McPhedran we there tasted the first and second prize honey from Borgue Show; it was very fine indeed, but as we had no opportunity of comparing it with any other at the time, we cannot say if it is superior to anything else: but this we can say, that there is no doubt about its being a first-class honey, if the samples we tasted were fair examples of what Borgue honey is. There is evidently some misunderstanding, or our correspondent Mr. McNally must have been misinformed. First and second prize-winners being accounted for, it is evident, as there was no third prize offered at Borgue Show, prize honey could not have competed at Castle Douglas Show.—ED.]

A REMINISCENCE.

[2413.] As you thought my letter anent onions worthy of a place in the *Journal*, perhaps you would find room for the following, though it has not much to do with bees.—J. LAWSON SISSON.

To the Editor of *Eastern Daily Press.*

A POTATO.

SIR,—In September last I sang the virtues of the onion. Let me now say a word about the potato. I know of three cases at least where a potato is carried in the pockets of men as a charm against rheumatism. How could this infallible cure have been found out? Some century and a half ago strange remedies were found in doctors' books—wood-lice, earwigs, millepedes, powdered scorpions, ticks, and gnats, and a hundred other such-like were considered as infallible for convulsions, and jaundice, erysipelas, &c. Cockchafers were good for the bite of a mad dog and the plague; formic acid did all kinds of wonderful things—cured leprosy, deafness, healed the memory—(I wonder if Mr. Brandram has tried it)—and made the body lively and vigorous. But a potato! A toad we know is a valuable animal, for J. G. Wood tells us 'to carry a dried toad in your pocket stops the bleeding at once if you chance to hit your nose against a stone.' I know a man here whose nose often bleeds, and he stops it by placing a bit of stick as thick as a cedar pencil inside his mouth, between the upper lip and the jaw, above the teeth. I also know a man who is quite sure that a walking toad—it must be a walking one, not a jumping one, like Mark Twain's frog—kept in the pocket is valuable in many ways. May be faith has a good deal to do with all this. But a potato! It strikes me that this vegetable remedy must have had its origin from the virtues of the bezoar stone, which the potato resembles after it has been sufficiently cooked in the pocket. An old bachelor friend of my father carried a bezoar stone in his purse, and often showed it me, and expatiated on its virtues against the bite of poisonous animals. I often think of the old bachelor. He published a *Visit to Niagara*, and gave me the camera obscura which he had taken with him on his travels. I was but a small delicate boy then, and, being kept at home months at a time by sickness, became a reader and experimenter. The *Encyclopædia Britannica* was my great delight, and finding all about the camera, I made the one given me into one of which I threw the image upon a piece of paper at the bottom of a box, and so could sketch with accuracy any scene. What I did then was, I believe, the cause of my taking up and practising photography energetically for so many years. To go back to my father's friend. He lived at Moor House, near Wakefield, a lonely spot, and he devised a plan by which, should burglars enter his house at night, they would be certain to make noise enough. The *modus operandi* I give for the benefit of timid parties living a long way from police officers. He had four or five dozen empty wine bottles laid down in his hall every night. You can fancy how burglars would desport themselves on these bottles, and as John Maude, J.P., was not a coward, you may guess what fine fun it would be to pop at the robbers as they were tumbling about over the bottles. He had a loaded gun always ready for such an emergency. But a potato!—I am, sir, yours truly, J. LAWSON SISSON.

Edinthorpe, April 22nd, 1884.

PERFECTION.

Fret not for Fame, but in Perfection rest.
Seek not the first, but the most excellent:
For thus it proves, when toils and cares have spent,
The first is often second to the best.
With patient spirit and unyielding zest
Toil to complete each daily task, Heaven sent,
Rather with little ably done content,
Than lost in barren fields of fruitless quest.
For, as in every grass, and leaf, and flower,
God's work surpasses man's, so man is next
To God, when, spurning gold, and fame, and praise,
He takes a daisy as his daily text,
Strives simply, unassumingly, each hour
To inform with beauty Life's uncomeliest ways.

W. FOSTER, in *Chambers' Journal* for Nov., 1889.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

THOS. GRIFFITHS.—*Dead Bees.*—What you noticed was merely a general funeral, which, owing to the bees not having had a flight for some time, became more noticeable. Be thankful your bees are in such good heart as to be able to carry away their dead.

W. HAWKES.—*Stores short.*—Put a cake of soft candy over the hole in the quilt which covers the frames, but do not disturb the quilt which actually touches the frames. Cover up warm. The cake should weigh 2 lb.

M. G. J.—*Dead Bees.*—Was the queen an old one? From your description we should say it is a case of dwindling owing to the failure of the queen.

J. T. W.—Will you kindly favour us with your address.

We regret to inform our readers that, while going to press with this number, we have received intelligence of the decease of Mr. G. Henderson. Although our friend had been unwell and unable to attend business for the last few days, this sad news will no doubt be received with painful surprise by his numerous friends in the Bee-keeping world.

The British Bee-keepers' Association.

IN accordance with the intimation given in the last Report of the Association, a fund was opened early in the present year to enable the Committee to meet the necessary expenses attending the Exhibition held at Windsor in June last. At a recent meeting of the Committee it was resolved that, in consequence of the exceptionally heavy work and expense which the Association had been called upon to undertake during the present year, this fund should be extended for general expenses. During the current year it has been found desirable—

(1) To oppose the several Railway Companies in their proposals to obtain powers for charging excessive rates for the carriage of honey and bee-keeping appliances under the Railway and Canal Traffic Act: a still further outlay is needed under this head.

(2) To amend the rules and regulations for conducting examinations.

(3) To hold an Exhibition of Honey, &c., at Horsham, in connexion with the Bath and West of England Agricultural Society, &c.

The Committee are unable to meet their current accounts as readily as they could wish, whilst additional work, such as the printing and circulation of useful pamphlets, &c., cannot be undertaken through lack of funds.

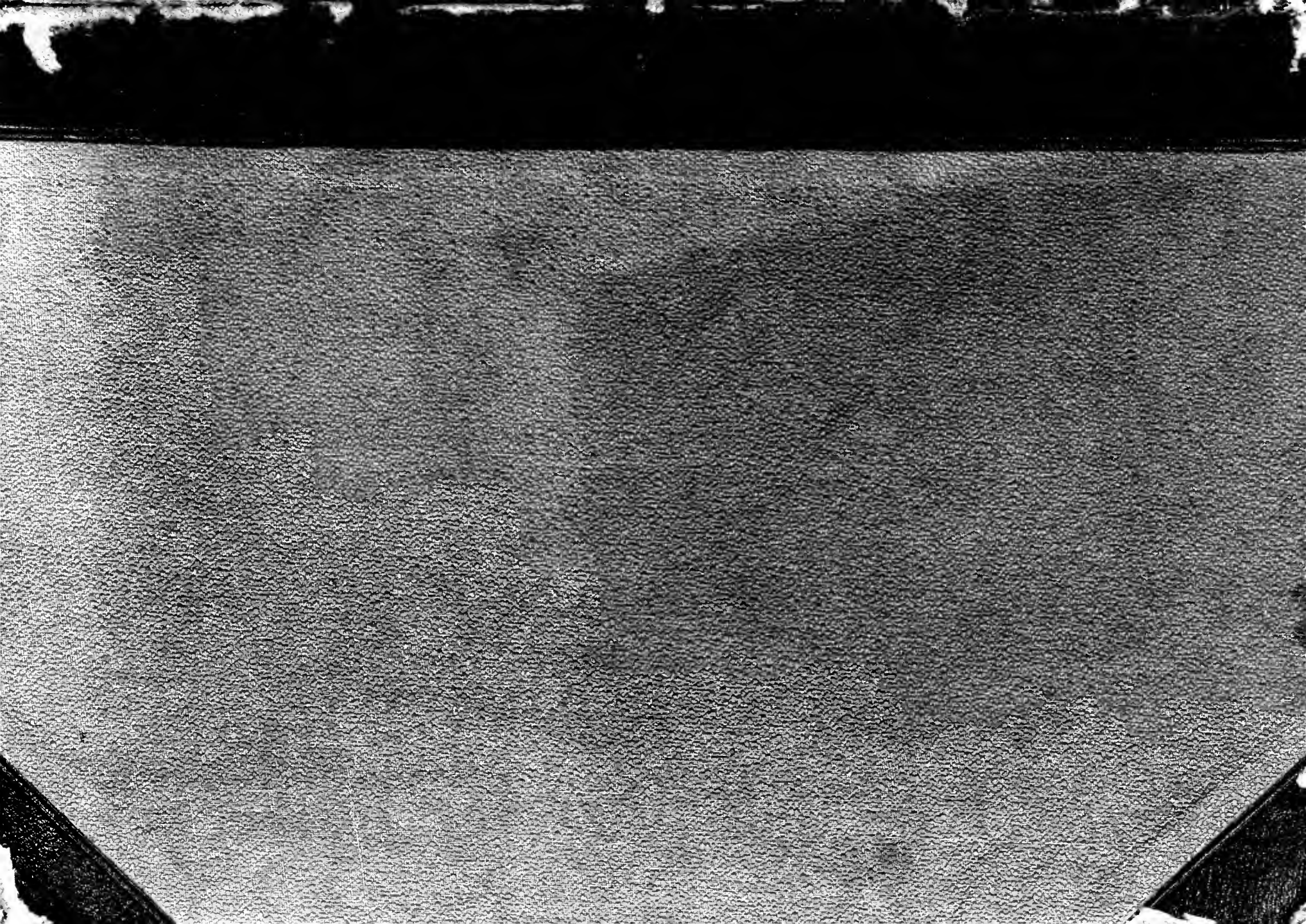
£45 of this fund has been absorbed in the expenses attending the Windsor Exhibition. Several subscriptions have since been received, making the total amount nearly £60. This sum is, however, far short of the Association's needs; at least £100 ought to be raised. The Committee urgently appeal for support in their work. Subscriptions should be forwarded to the Secretary, Mr. John Huckle, Kings Langley, Herts.

THOS. W. COWAN, *Chairman.*

November, 1889.

SUBSCRIBERS:

	£	s.	d.
Acton, Mrs.	0	5	0
'Amateur Expert'	0	10	0
Bartrum, Rev. Dr.	0	10	6
Bennett, Mr. R.	0	5	0
Bligh, Hon. and Rev. H.	1	1	0
Brett, Mr. R. T.	0	1	1
Bunbury, Mr. H.	1	0	0
Burdett-Coutts, Baroness	10	0	0
Campbell, Captain C. D.	1	1	0
Carr, Mr. W. B.	1	1	0
Do. (special)	3	0	0
Carmichael, Mr. T. D. G.	0	10	0
Clay, Rev. E.	1	1	0
Cowan, Mr. Thos. W.	3	3	0
Elderkin, Mr. T.	0	5	0
Errington, Rev. R.	1	0	0
Eyton, Miss	0	10	0
Friend, A.	5	0	0
Gayton, Miss	0	5	0
Hallam, Mr. J.	0	2	6
Hasluck, Mr. P. P.	2	2	0
Henderson, Mr. Geo.	0	10	6
Herne, Colonel	0	5	0
Huckle, Mr.	0	10	6
Jonas, Mr. H.	2	2	0
Leadbitter, Mr. T. F.	0	5	0
McClure, Mr. W. Lees	0	5	0
Middlesex Bee-keepers' Association	3	3	0
Morris, Mr. H. G.	1	1	0
Morrison, Mrs.	5	0	0
Ord, Captain W. H. G.	0	10	6
Phillimore, Lady	0	2	0
Proprietor *British Bee Journal*	3	3	0
Raynor, Rev. Geo. (late)	1	1	0
Reed, Mr. F.	0	5	0
Robinson, Mr. A. W.	0	5	0
Rohde, Mr. R. T.	1	0	0
Rohde, Mr. H.	1	0	0
Ross, Mr. J.	0	10	0
Rusbridge, Mr. A.	0	5	0
Scott, Rev. F. T.	2	2	0
Sells & Son, Messrs.	0	5	0
Stothard, Mr. G.	0	5	0
Turner, Mr. E. F.	0	5	0
Walton, Mr. J.	0	2	0
Wray, Dr.	0	5	0
Additional Subscription:			
Campbell, Captain	1	1	0
Dismoor, J.	1	1	0
Garratt, J.	1	1	0
McNally, J. D.	0	5	0
McNally, W.	0	5	0

SPECIAL FUND in support of the Mansion House United Association on Railway Rates:

	£	s.	d.
Lancashire and Cheshire Association	1	1	0
Middlesex Association	1	1	0
Kent Association	1	1	0
Surrey Association	1	1	0
Notts Association	0	10	6